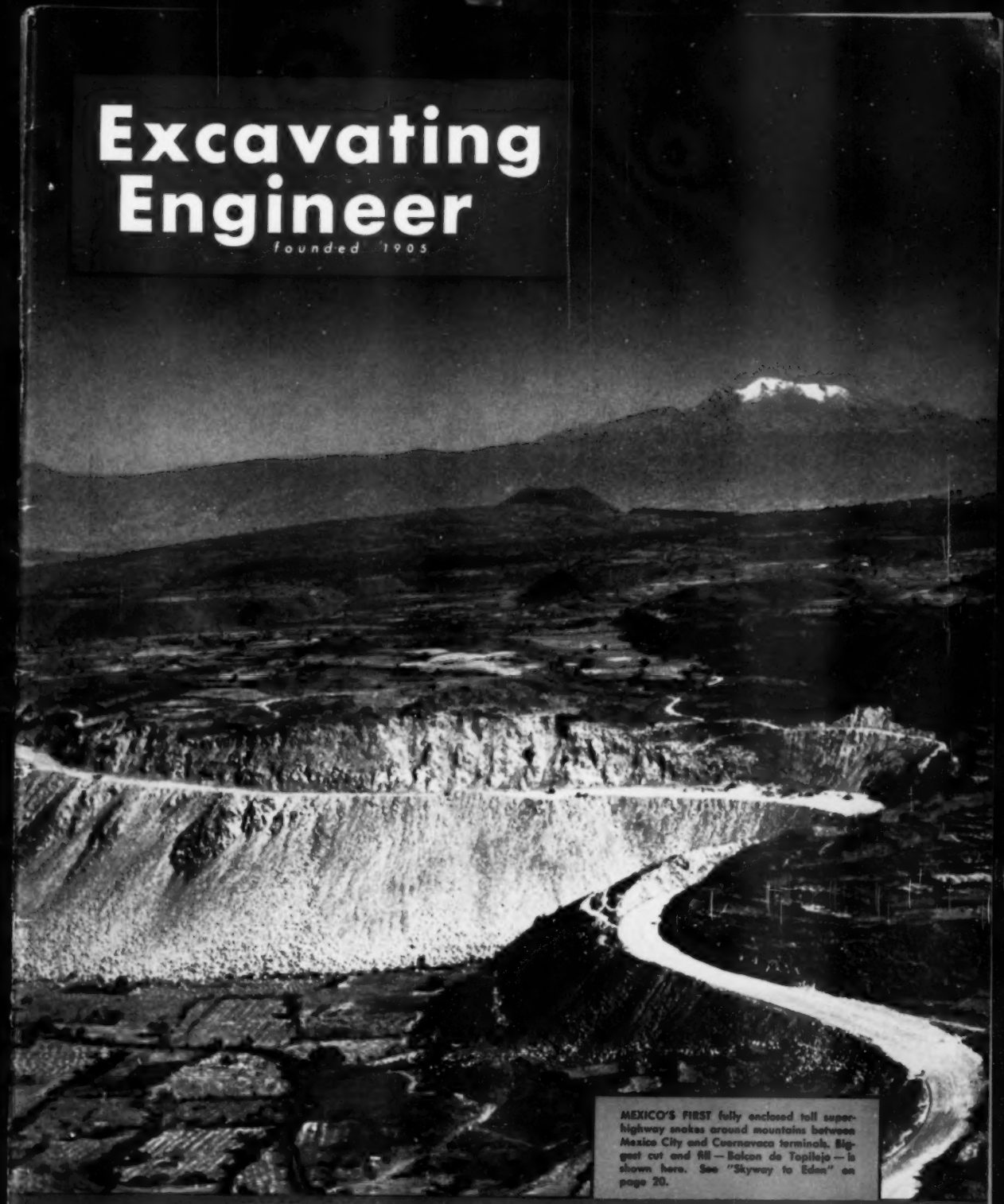
Excavating Engineer

founded 1905



MEXICO'S FIRST fully enclosed toll superhighway snakes around mountains between Mexico City and Cuernavaca terminals. Biggest cut and fill — Balcon de Topilejo — is shown here. See "Skyway to Eden" on page 20.

JUNE, 1952

BUCYRUS ERIE

6-YARD

150-B

Brings NEW SPEED, POWER, CAPACITY

To Heavy Duty Excavating

ADDED to the time-proved superiorities of design and construction which have made Bucyrus-Erie quarry and mining shovels traditionally "years ahead" are important features new to an excavator of this size, yet *thoroughly proved in the field*. Among these 150-B features are:

Exclusive Two-Section Boom with tubular dipper handle free to rotate in saddle block. Used with outstanding success on Bucyrus-Erie's large stripping shovels for many years, this design speeds the working cycle and permits increasing the payload because it reduces front end weight materially — yet provides enormous strength. Upper boom section carries only load resulting from pull of ropes, s[illegible]ong trussed lower section transmits directly to the revolving frame the vibrations, torsional and shock loads set up in digging. Rope crowd is quiet, positive, with crowd machinery located on the deck.

Powerful New Main Machinery designed for double twin hoist, smoothly delivers power where you want it, when you want it. Hoist machinery pulls dipper straight through tough banks with steady positive action. Fast smooth swing, with quick acceleration and deceleration, shaves seconds off every cycle.

Larger Stronger Mounting has new propelling machinery arrangement, which provides rapid engagement of the propel for fast move ups. Cored box-section tread links have separate wearing paths for rollers and driving tumblers. Cat belts have high wear resistance, stay in adjustment for long periods.

The 150-B has full Ward Leonard independent motor control, is fully convertible to dragline service, features numerous other design advances that make it truly "years ahead". MSC

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

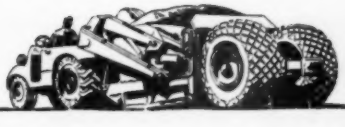
FACT: They OUTWORK the rest

for TRACTION

—you can't beat the
SURE-GRIP
—top tire for drive-wheel traction on graders and pans

for ROCK WORK

—you can't beat the
HARD ROCK LUG
— super-tough champ for all kinds of rock work



for FLOTATION

—you can't beat the
ALL-WEATHER
— the earth mover that's finest for free-rolling wheels

PROOF: **More tons are hauled on Goodyear tires than on any other kind**

Always Buy and Specify

GOODYEAR

—it pays!

Sure Grip, All-Weather—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

WIRE ROPE

This is the most economical rope we've ever made for construction equipment

ROEBLING is the best known name in wire rope. That's partly because we were the first wire rope maker in America. But more than that, we've always led in developing better wire and better rope for every purpose.

Today's Roebling Preformed "Blue Center" Steel Wire Rope is the best choice for efficiency and long life on excavating and construction equipment. This rope has *extra* resistance to crushing and abrasion . . . stands up under rough going. It saves you time and cuts costs.

There's a Roebling wire rope of the right specification for top service on any job. Call on your Roebling Field Man for his recommendations. John A. Roebling's Sons Company, Trenton 2, New Jersey.

ROEBLING

ATLANTA, 934 AVON AVE • BOSTON, 51 SLEEPER ST • CHICAGO, 5525 W. ROOSEVELT RD • CINCINNATI, 3253 FREDONIA AVE • CLEVELAND, 701 ST. CLAIR AVE, N. E. • DENVER, 4801 JACKSON ST • DETROIT, 965 FISHER BLDG • HOUSTON, 6216 NAVIGATION BLVD • LOS ANGELES, 5340 E. HARBOR ST • NEW YORK, 19 RECTOR ST • ODESSA, TEXAS, 1920 E. 2ND ST • PHILADELPHIA, 230 VINE ST • SAN FRANCISCO, 1740 17TH ST • SEATTLE, 900 1ST AVE S. • TULSA, 321 N CHEYENNE ST • EXPORT SALES OFFICE, TRENTON 2, N. J.

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Excavating Engineer

founded 1905

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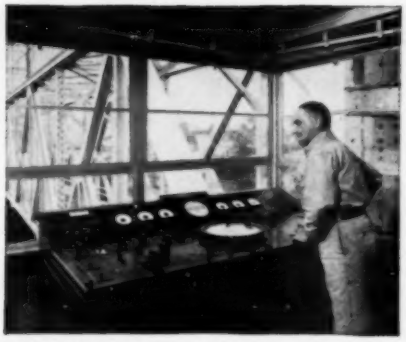
AMPLIDYNE CONTROL—first applied to movable bridges by G.E.—permits raising and lowering Oakland's new Fruitvale bridge in a shorter time than by any other method. Amplidyne control responds instantly, provides faster acceleration and deceleration.



BRIDGE OPERATION is centered in operator's console. Amplidyne's closer control keeps ends of span aligned during operation, "seats" bridge accurately and smoothly.

REDUCED STRESS ON BRIDGE structure and machinery results from torque limiting, inherent in amplidyne control. Photo shows part of G-E drive equipment in east tower.

Smooth, pinpoint control speeds bridge operation

G-E amplidyne-controlled drive prevents skewing, seats span faster, protects structure from shocks

Key to precise control, faster operation, and better equipment protection of Oakland's new Fruitvale Avenue Lift Bridge is its General Electric amplidyne-controlled drive system. Working closely with Woodruff & Sampson, consulting engineers for the Corps of Engineers, Judson Pacific–Murphy Corp., general contractors, and Enterprise Electric Works, electrical contractors, G.E. has again engineered the versatile amplidyne into an outstanding movable-bridge system.

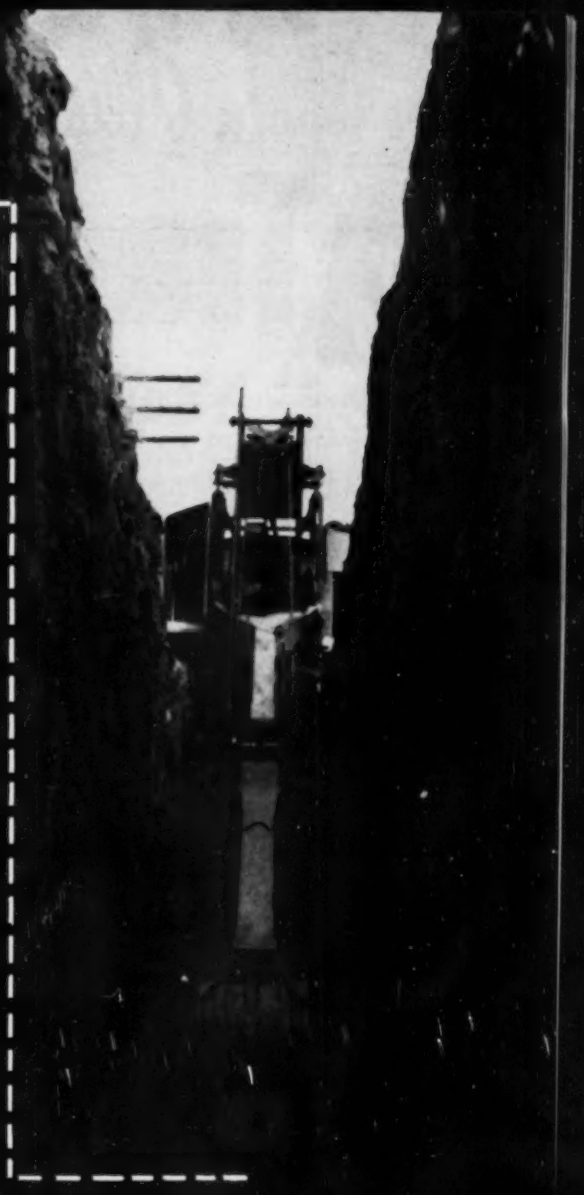
This is but one example of the help G-E engineers can provide *your* engineers or consultants on installed equipment for heavy construction projects. Contact your G-E Apparatus Sales Office. General Electric Company, Schenectady 5, N. Y. 664-23

WORLD'S FIRST amplidyne-controlled lift bridge—pioneered by G.E.—is Stickel Memorial Bridge in New Jersey. Consulting engineers were Hardesty & Hanover.

Engineered Electrical Systems For Heavy Construction

GENERAL ELECTRIC

It's a LONG WAY DOWN



—and when you remind yourself that the piece of equipment that does this is not confined to ditching but is easily converted to a Shovel, Crane or Dragline, then you realize why a Northwest Pullshovel is a better money maker than a one-purpose machine.

Don't buy a one-purpose unit for your sewer work and ditching. Your Northwest will cut straight wall trench, shallow trench or deep trench, narrow trench or wide trench. It will spoil to banks or load to trucks and keep the street open. A wide range of side teeth is available for various ground conditions and widths —and being a Northwest you know you will have the best in operating ranges.

No piece of trenching equipment offers more versatility than the Northwest Pullshovel. Not only has it been proved as a Pullshovel but it has been proved as a Shovel and as a Crane and Dragline. That's the reason why one out of every three Northwests sold is a repeat order.

NORTHWEST ENGINEERING CO.
1506 Field Building, 135 South LaSalle Street
Chicago 3, Illinois

Successful Contractors Stay Successful With Proved Equipment

It's another **NORTHWEST**

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

only Allis-Chalmers offers you

History-Making Tracto-Shovel

Thousands of Allis-Chalmers HD-5G 1-yd. front-end shovels are making history . . . handling an endless variety of excavating and material handling jobs faster, at lower cost than ever before.

Now . . . to meet the challenge of ever-increasing production demands, Allis-Chalmers *multiplies the scope of tractor usefulness even more.* And here's how.

The same basic design — the same versatility that made the HD-5G so useful can now be yours in 2-yd., 3-yd., and 4-yd. Tracto-Shovels. Combined with the unmatched performance of the new Allis-Chalmers tractors, they give you a real competitive advantage by bringing you a new, faster and better way of getting the job done.

A NEW ERA OF TRACTOR USEFULNESS

Pioneering New Methods — Tracto-Shovels are blazing new trails in excavating and material handling . . . doing traditional jobs in a new, better way.

A Size for Every Job — Faster, more efficient operation; at lower equipment investment.

All-'Round Versatility — Not limited to a specific type of operation. Quickly interchangeable attachments adapt Tracto-Shovels to different assignments *in minutes.* Simple truck or trailer transportation between jobs.

Built to Take It — These new Tracto-Shovels are the toughest, strongest ever built. Every part has ample size and strength to do its job.

14 different attachments

Standard buckets, heavy-duty rock buckets, rock forks, bulldozer blades, light materials buckets (up to 7 cu. yd.) . . . plus other attachments for some models.

1 yd. HD-5G	2 yd.* HD-9G	3 yd.* HD-15G	4 yd.* HD-20G
40 Drawbar hp.	72 Drawbar hp.	109 Drawbar hp.	Hydraulic torque converter drive
Dumping height (bucket hinge pin): 9 ft., ¼ in.	Dumping height (bucket hinge pin): 11 ft., 4 in.	Dumping height (bucket hinge pin): 12 ft., 8 in.	175 net engine hp.
Total weight: 16,200 lb.	Total weight: 29,900 lb.	Total weight: 40,000 lb.	Dumping height (bucket hinge pin): 13 ft., 5 in.
			Total weight: 61,600 lb.

Advantages*

NOW IN 3 NEW, BIGGER SIZES!

World's Largest Front-End Shovel — handles toughest excavating and materials handling jobs in a new, faster, better way. Standard bucket capacity — 4 yd.; light materials capacity — 7 yd.

— the newest, finest line on Earth!

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

The Euclid Loader working with Bottom-Dump "Eucs", has set production records on many big yardage jobs. On this highway project "Eucs" were loaded with 13.6 bank cu. yds. in about 35 seconds.

Bottom-Dump "Eucs" have struck capacities of 13 to 25 cu. yds. . . . diesel engines of 190 to 300 h.p. . . . top speeds loaded up to 34.4 m.p.h.

LONG LIFE ON THE TOUGHEST JOBS

Rear-Dump Euclids range in capacity from 10 to 34 tons . . . top speeds loaded up to 36.3 m.p.h. . . . diesel engines of 125 to 400 h.p.

Put "Eucs" on the job and be on more jobs!

Proof that Euclids are engineered and built for long life performance in off-the-highway service is found in the record—of the thousands built, more than 9 out of 11 "Eucs" are still in use!

Engineered and built for lasting strength, Euclids are job proved for continuous operation, less down time and lower maintenance costs on a wide range of construction, mining and quarry work.

Ask your Euclid Distributor about the Euclid features that mean more loads per hour at more profit per load—large capacity, power and traction for steep grades, and speed on the haul road.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

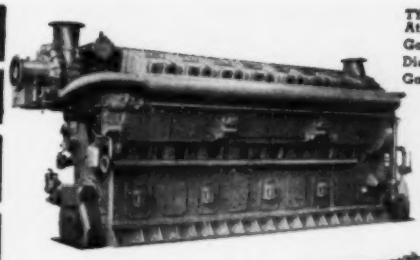
CABLE ADDRESS, YUKLID. CODE: BENTLEY

EUCLIDS *Move the Earth*

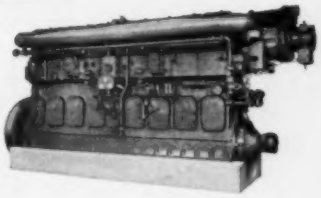
● Identified here are five of the most popular Cooper-Bessemer stationary engine types—in a power range from 290 to 3700 bhp. Not only does each type offer variety in the number of cylinders, but most are available as gas engines, gas-diesels or full diesels. Moreover each type comes either atmospheric or supercharged.

This gives you some idea of how well Cooper-Bessemer is prepared to meet your power requirements ideally — with the engine qualities that mean a whale of a lot in trouble-free service and especially in low over-all operating costs!

If your plans call for defense-supporting power, be sure to check with Cooper-Bessemer. Get all the facts on features that pay off for Cooper-Bessemer users time and time again.



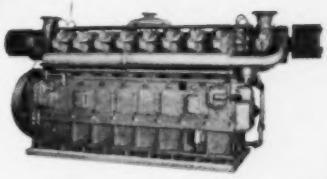
TYPE LSV ..... 12 or 16 cyl.
Atmospheric and Supercharged
Gas ..... 1440 to 3700 hp.
Diesel ..... 1650 to 3700 hp.
Gas-Diesel ..... 1650 to 3700 hp.



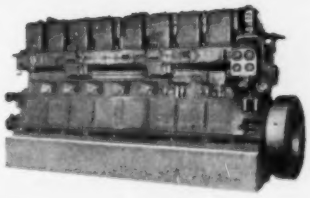
TYPE LS ..... 6, 7 or 8 cyl.
Atmospheric and Supercharged
Gas ..... 720 to 1850 hp.
Diesel ..... 825 to 1850 hp.
Gas-Diesel ..... 825 to 1850 hp.

WHEN IT COMES TO POWER...

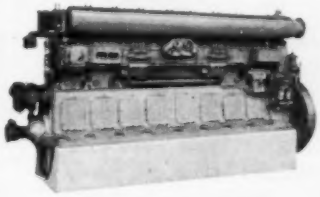
the better it "fits", the less it costs!



TYPE FV ..... 6, 8, 12 or 16 cyl.
Diesel—
Atmospheric .... 290 to 1230 hp.
Diesel—
Supercharged 420 to 1850 hp.



TYPE JS ..... 5, 6, 7 or 8 cyl.
Atmospheric and Supercharged
Gas ..... 375 to 1500 hp.
Diesel ..... 430 to 1500 hp.
Gas-Diesel ..... 430 to 1500 hp.

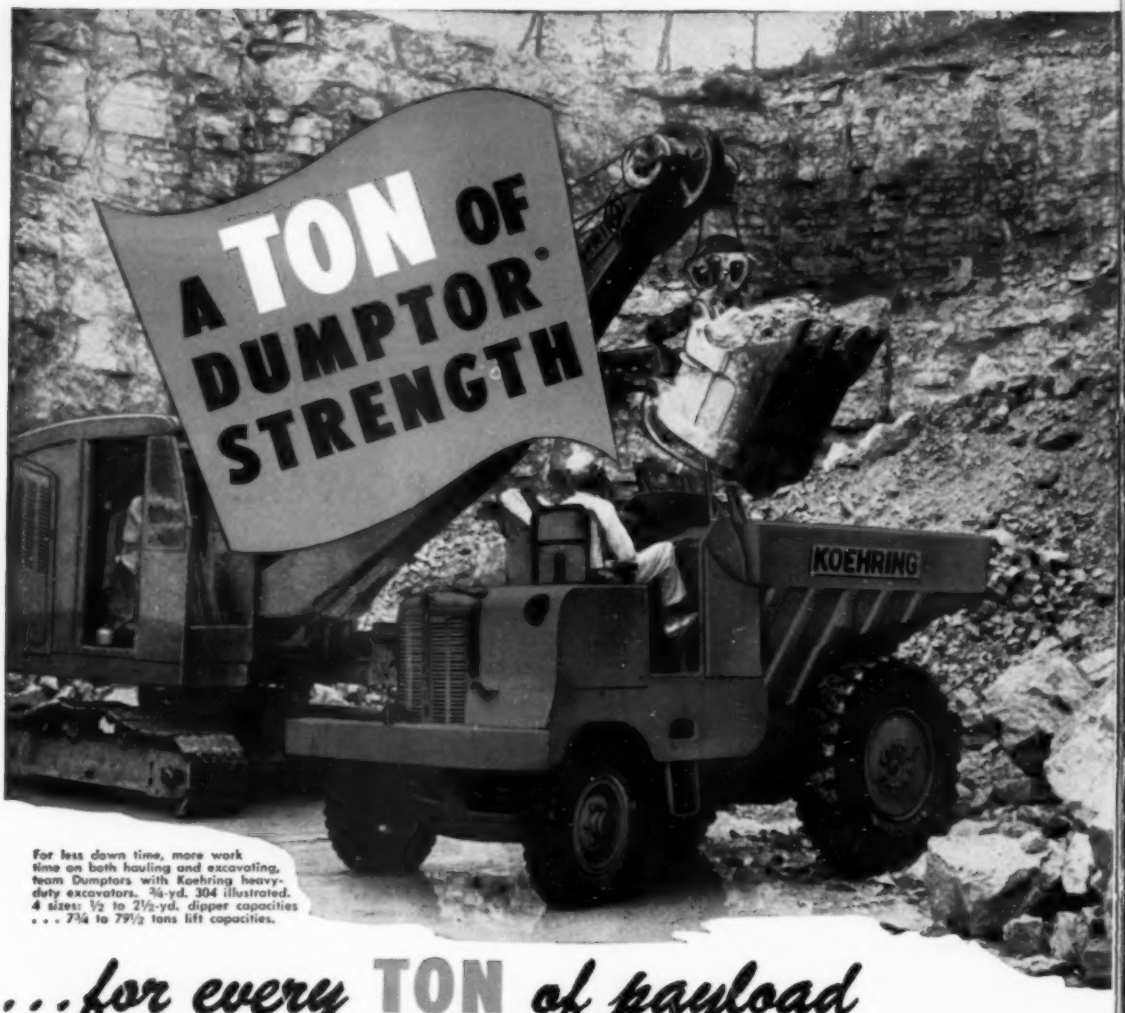


TYPE GS ..... 5, 6 or 8 cyl.
Atmospheric and Supercharged
Gas ..... 320 to 1200 hp.
Diesel ..... 300 to 1200 hp.
Gas-Diesel ..... 300 to 1200 hp.

The
Cooper-Bessemer
Corporation

MOUNT VERNON, OHIO — GROVE CITY, PENNA.

New York Washington, D. C. Bradford, Pa. San Francisco Houston, Dallas Greggton, Pampa and Odessa, Texas Seattle Tulsa Shreveport St. Louis Los Angeles Chicago Caracas, Venezuela Cooper-Bessemer of Canada, Ltd., Halifax, Nova Scotia Gloucester, Mass. Calmes Engineering Co., New Orleans, La.



For less down time, more work time on both hauling and excavating, team Dumptors with Koehring heavy-duty excavators. 3¾-yd. 304 illustrated. 4 sizes: ½ to 2½-yd. dipper capacities . . . 7¾ to 79½ tons lift capacities.

. . . for every TON of payload

Dumptors stand up under the severest shocks of shovel-loading 1½ to 2½ yards of rock at a pass because they're built extra tough for rock handling. There's more than a ton of net vehicle weight for every ton of payload.

All-welded body, sides, ends and bottom are heavily reinforced with 4" channel ribs. More than triple strength has been built into the bottom . . . seasoned 1⅝" oak timbers are securely bolted between two layers of 5/16" steel plate. Steel-oak-steel construction cushions shocks of rock loading. Free-swinging, kick-out pan adds another tough 3/16" high-manganese steel plate for extra protection. Dumptor also has: rugged main frame, 8" ship-channels, heavily trussed . . . one-piece steel drive-axle housing and transmission case . . . 4" chrome steel drive axles . . . cast alloy steel "I" beam steering axle. All add extra strength to Dumptor chassis.

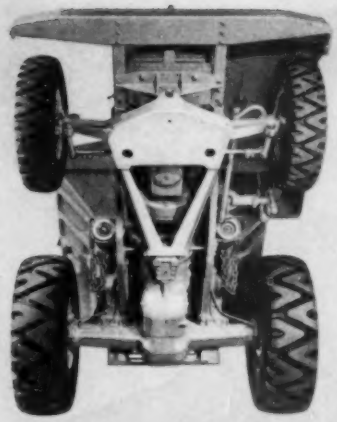
Heavy-duty construction like this assures you that Koehring 6-yard Dumptors will stand up under your toughest assignments . . . that there will be little down time with Dumptors on your job. For complete facts, see your Koehring distributor today.

CK122

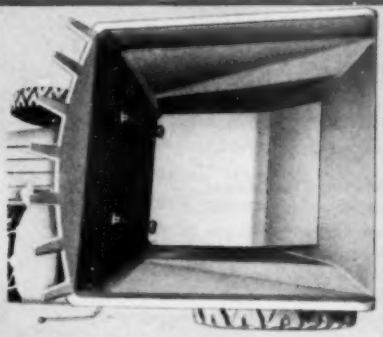
KOEHRING HEAVY DUTY

KOEHRING DUMPTOR®

KOEHRING COMPANY, MILWAUKEE 16, WIS. • SUBSIDIARIES: • KWIK-MIX • PARSONS • JOHNSON



NO "SOFT SPOT" on Dumpter's underside . . . 1-piece, cast steel housing protects drive axle and enclosed chain drive. Wishbone supports the skid plate . . . shields the radius rod and the engine crank case . . . and supports the oscillating steering axle.

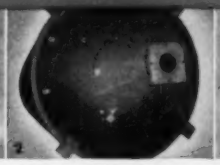


KICK-OUT PAN adds an extra 3/16" high-manganese steel plate on top of sturdy Dumpter bottom . . . breaks suction of sticky materials for fast, clean dump. Big 8' x 8' top gives easy-to-hit target for fast loading over the side or end . . . with less spillage.

1-SECOND GRAVITY DUMP . . . no slow-acting body hoists . . . no body-hoist maintenance . . . plus same speeds forward and reverse for no-turn shuttle hauling keep production yardage high, costs low with Dumpters.

INCREASE BATCH PLANT PROFITS *with Johnson accessories*

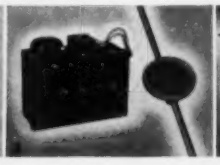
Rotary Vane Compressor gives 7 cu. ft. air pressure per min. cement aeration. 15-lb.-limit relief valve.



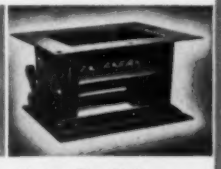
Aeration Fittings properly spaced in Johnson bins and silos keep cement free flowing.

2-Way Elevator Discharge Valve, a flop-type chute, directs flow of cement to the storage tank.

Pivoted Distributor feeds aggregates to bin sections. Positions and locks by ground control wheel.

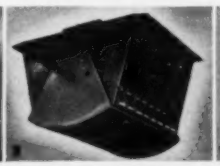


Bin Signals accurately register high and low levels in cement or aggregate. Dust-proof.



Rotary Plug Valve accurately controls cement flow. Plug operates freely in self-aligning bearings.

Receiving Hopper 30 and 50-bbl. sizes, feeds bulk cement to elevator. All-welded, weather-proof.



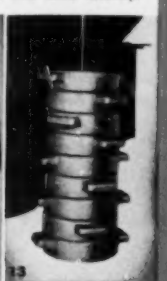
Aggregate Fill Valves single clam, radial type for jam-proof closing. Hydraulic pressure lubrication.

Tunnel Gate for stockpile reclamation. Single radial clam. Skirt board is hinged, opens and locks securely.

Safety Cage of 28" steel, welded to casing, can be furnished with all Johnson elevators.

Water Weigh Batchers, semi- or full-automatic types. 120 and 240-gal. sizes available.

Elevator Buckets in many sizes for aggregates, and cement. **Steel Chain** has carburized knuckles.



Batcher Test Weights in sets of nine, 50-lb. calibrated units, and two 25-lb. steel hangers.

Mail to **C. S. JOHNSON COMPANY**
CHAMPAIGN, ILLINOIS
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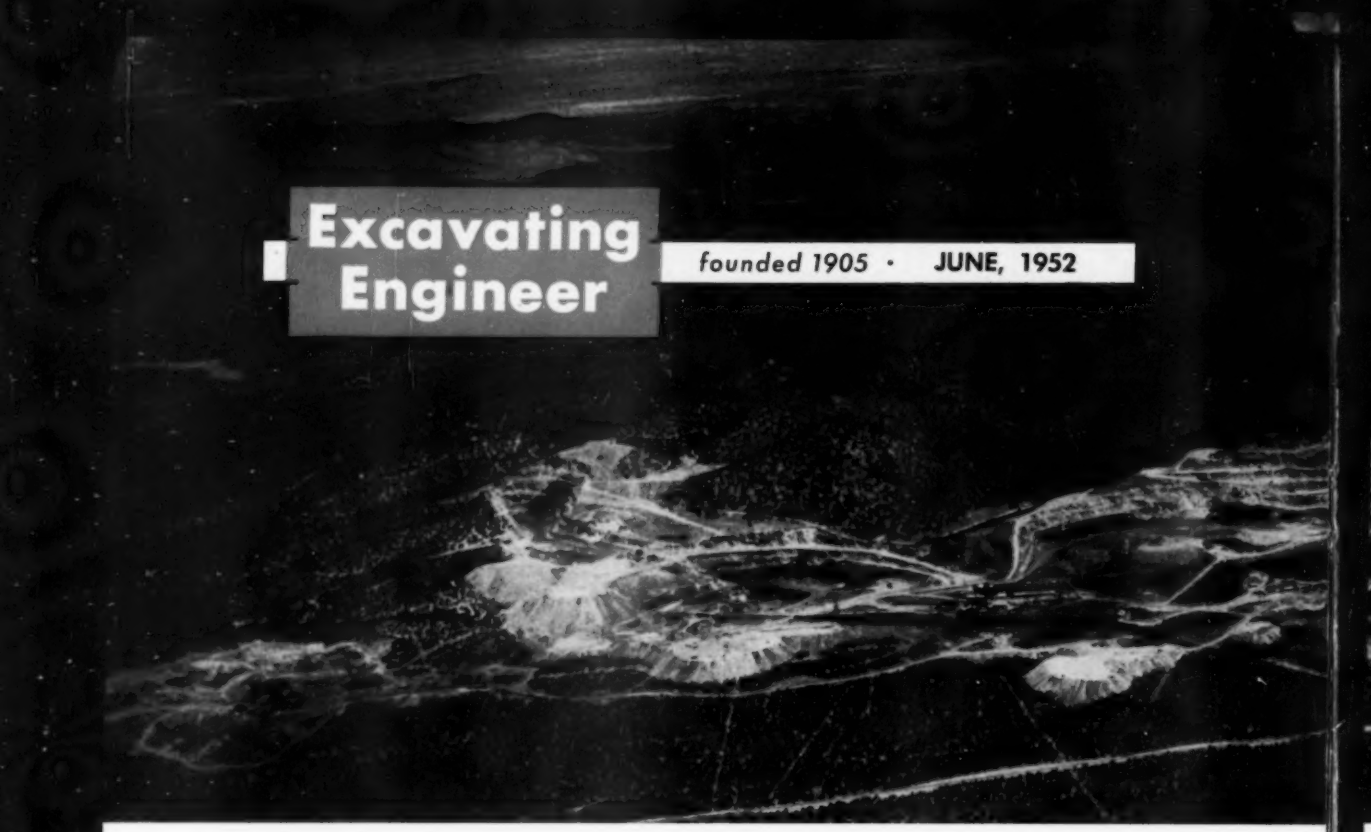


• This vast, lonely country of southern Utah is the site of iron mining operations. In center of jagged excavation at Iron Mountain is Columbia Iron Mining Co. operation. Colorado Fuel & Iron Corp. pit at extreme right is being opened up and shaped by Utah Construction Co. Below: Secondary breakdown of oversize rock is held to a minimum by close centering of large-diameter blast holes, but some of this work is necessary. Two jackhammers are at work here as powderman loads one of the big rocks.

• At Iron Mountain, in a confined area where new bench is about to be opened, this Bucyrus-Erie 54-B shovel loads ore to Dart truck as Bucyrus-Erie 29-T blast hole drill sinks powder holes in background.

The Legacy of Brigham Young

by Ray Day

"THE day will come when the welfare of the nation may depend on the earth and rock from Dixie."

Those prophetic words were spoken a century ago by Brigham Young, head of the Mormon faith, as he contemplated the future for that part of southwest Utah now known as Dixie National Forest. Scouts and explorers had found traces of a fabulous deposit of iron ore near the present town of Cedar City.

Today these precious deposits of mineral which Brigham Young had the foresight to save for future generations are finally fulfilling their destiny. Columbia Iron Mining Co., a U.S. Steel subsidiary, is taking ore from two pits about 10 miles apart for Ironton and Geneva Works of Columbia-General Steel Division. A pit in the same locality is furnishing ore for Colorado Fuel & Iron Corporation's steel mill at Pueblo. Still another pit, operated by Utah Construction Co., is sending a supply of ore to Kaiser's new mill in Fontana, Calif., to augment the Eagle Mountain supply for that firm.

All through the west the evidence is piling up that an industrial expansion is taking place. With the establishment of new steel mills in the Rocky Mountain and Pacific Coast areas, the fabulous deposits of Dixie ore are daily assuming greater importance. Seattle, Portland, San Francisco, Los Angeles, and other western cities are adding industrial plants almost as fast as contractors can build them. The feverish mining activity in the rugged, isolated southern Utah mountains may seem remote, but actually it is tied intimately to the industrial welfare of the west and the nation.

The Dixie orebodies occur generally as replacements in limestone, and are igneous intrusions. The geological uplifting process which took place ages ago caused some of the formations to become split, slanted, and irregular. In contrast to the regular orebody formation in the Mesabi range of Minnesota, for example, Dixie's deposits are considerably smaller. An orebody of from 10 million to 15 million tons in Dixie is considered large, and the stripping and excavation problems to uncover the ore are peculiar to the area.

With the exception of a few soft spots the ore is very hard and dense, and requires drilling and shooting. Most of the ore checks out approximately 50% iron, but deposits up to 72% have been found. The latter ore is as high in quality as anything in the Scandinavian peninsula of Europe, and will produce the finest surgical grade steel.

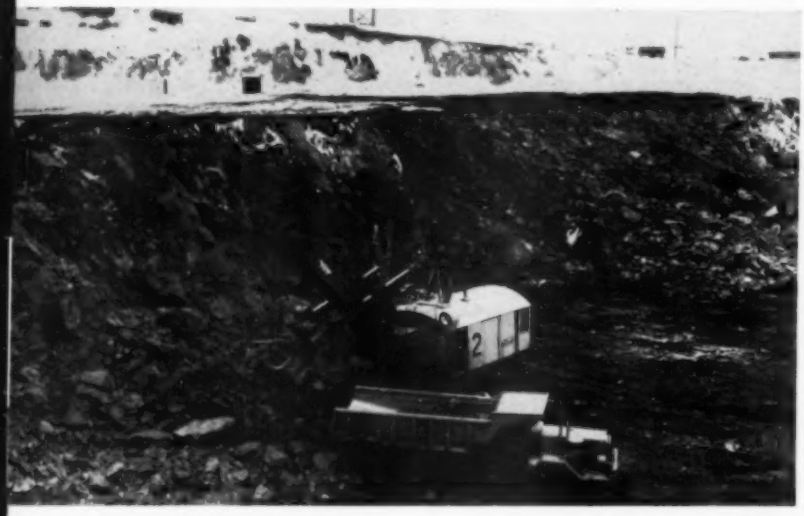
The first mining attempts in the area date back to 1851, four years after the Mormons arrived in Salt Lake City. A small colony was established at Cedar City primarily to settle the southern part of the state and work the ore deposits. But even though the ore was sorely needed for wagon wheel bands, plowshares and hardware, the Mormon leader cautioned against the too-rapid exploitation of the material. In those days, too, the extent of the ore deposit had not been accurately determined.

The first early attempts to produce iron were difficult, because of the scarcity of coking coal anywhere in the vicinity. What iron and steel was produced was made with charcoal. By 1880 the transcontinental Union Pacific Railroad could bring steel from eastern markets cheaper than it could be produced in Utah, and the plants were abandoned.

There were sporadic attempts to make a go of iron production over

Mormon prediction comes true as Utah's treasure chest of iron ore is unlocked to feed growing western blast furnaces.

• Utah Construction Co. uses this Bucyrus-Erie 120-B shovel and fleet of Euclid end-dump trucks to haul stripping away from Desert Mound mine. This scene is typical of Desert Mound as well as Colorado Fuel & Iron Corp. operations. Spoiled stripping material is wasted in canyons away from known ore deposits.



• An electrically powered Bucyrus-Erie 85-B shovel loads ore at Iron Mountain. The 3½-yd. dipper on this machine is ideal for crushers and reduction machinery because dipper will handle no bigger rock than crushers can take. In spite of one of the wettest winters on record, shovels and trucks continued to work.

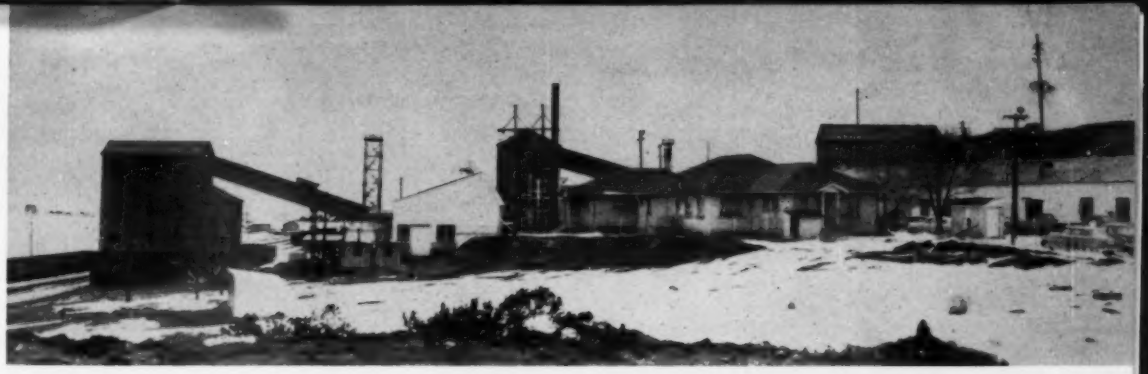
• At Desert Mound, one of two Marion 151-M's loads the iron ore. The truck is a Euclid. Clean-up is performed by Caterpillar D8. On the horizon, service truck lubricates Northwest shovel.

the years. It was not until 1924, though, that Columbia Steel Co. successfully manufactured pig iron from Utah's raw materials at Ironton. This operation is still going along side of the new Geneva Steel works, built in 1942-43. A ten-fold increase in Columbia Iron Mining Company's operations resulted from this steel expansion program. Colorado Fuel and Iron Corp. also has been shipping a sizable tonnage of iron ore to its plant in Pueblo since the early 1940's.

Methods Similar

Mining methods similar in all but fine details are being used by Columbia Iron Mining Co., Colorado Fuel and Iron Corp., and the Utah Construction Co. The operations are all of the open pit type, with regularly established benches or berms to permit the withdrawal of ore. For every ton of ore there is from ½ to 1.5 cubic yards of waste material, which occurs as surrounding limestone or dirt. In most cases large-diameter drill holes are being sunk and barrel-loaded without springing to break up the formation. Loading is done by power shovels of reasonably large capacity (Bucyrus-Erie 85-B's with 3½-yd. dippers are commonplace), and hauling is done by 30-ton units such as Euclids, Macks, Darts, and so on. A crusher reduction program insures that the ore leaves the mining area in sizes smaller than 2 inches.

Owing to the similarity of the several operations, this article will detail the operations of Columbia Iron



Mining Co., since methods are typical generally of the entire area.

• General view of the Iron Mountain camp shows administration building, shops, and crusher and generating buildings in background. Below: G. D. MacDonald, superintendent of Columbia Iron Mining Co. at Cedar City, Ut., points out the many ore samples in his office. Note safety commendation awarded his operation.

Columbia Works Two Mines

At the present time Columbia Iron Mining Co. is working two mines, known as the Iron Mountain and the Desert Mound. Work at Iron Mountain began actively in 1935, while activity at Desert Mound started in 1950 and 1951. The mines are located at an average elevation of 6,500 feet above sea level, and are independent of each other in most respects. The railroad which carries about 200 railroad cars of material daily is common to both mines, and because of the shortage of dependable electric power near Cedar City the company has erected a generating station at Iron Mountain which also feeds Desert Mound over a high-voltage transmission line. Three Worthington driven Westinghouse 750-kw generators supply this power.

Stripping is being done only at Desert Mound by the Utah Construction Co., but actual mining of the iron ore plus considerable stripping is being handled by Columbia Iron Mining Co. At Iron Mountain, Utah is doing its strip drilling with ten Ingersoll-Rand and Cleveland wagon drills, powered by Ingersoll-Rand 365 cfm compressors. Two P&H 1055's and a Bucyrus-Erie 120-B, all with Esco dippers, are loading the material to Euclid end-dump trucks which haul it away to nearby spoil pile. At Desert Mound two Joy rotary Heavy Duty Masters are used for drilling, and a pair of Marion 151-M shovels are doing the loading.

The Iron Mountain mine now has been opened up to cover an area of one square mile, and it covers three different orebodies which have been worked at various times. The slopes of the mine have been established on a regular pattern of 35 ft. benches with a 35 ft. berm at the base of two combined 35 ft. benches for a haul road. In one spot the mine has reached a depth of 200 feet, and it is expected that the orebodies will be worked to considerably greater depths. Ground water has thus far not been a problem, in spite of the past winter when heavy rains and snow fell throughout the area.

Drilling

Drilling in the ore body at the two mines is similar, with hole centers set at 16 feet and sunk in a row back from the face at the berm limit line. Five Bucyrus-Erie 29-T blast hole drills and two Joy Model 58 rotaries are doing the drilling. The churn drill bits are standard Bucyrus-Erie steel, (9 in. dia.) while the Joy machines are using Hughes special rotary bits for rock, 7⅞ in. dia.

Excellent drill progress is being made by both types of drill rig. The Hughes bits on the Joy drills are used until they are completely worn out, and are then discarded. The Bucyrus-Erie drill bits are resharpened on a Bucyrus-Erie drill bit sharpener in the Iron Mountain shop, tempered and reused. The mine floor is kept in a level condition by a D8 Caterpillar mounted dozer and a Model C Tournadozer, to provide the best conditions possible for truck haulage.

Drilling in all cases is carried 5 feet below grade, to insure a clean breakout to the toe of the bank. The holes are barrel loaded with 40% blasting powder of the granular type, and considerable Atlas Flo-Dyn is also used, principally by Utah Construction Co. The shots are set off by Primacord fuse and electric detonation. Since the formation is sufficiently shaky that a heavy jar might break out a slide, delays are of ten employed to break up a blast into from three to eight parts. As a rule the center portion of the blast is fired instantaneously, with delays placed out to-

• A Jay drill works at Desert Mound mine, as Marion 151-M shovel loads Euclid truck in background. As Brigham Young predicted, the ores of southern Utah would one day be important to the welfare of the nation.

ward the edges from that point. The powder ratio is approximately .35 pound per ton of material broken.

Secondary drilling to reduce oversize chunks of ore follows along closely behind the main blasts. Several 55 lb. Thor jackhammers and a small Ingersoll-Rand compressor are used for this purpose. Iron Mountain was the mine where tungsten carbide rock bits were first pioneered after their introduction, and Timken tungsten carbide bits are still used on the jackhammer steel. After the holes are strategically drilled into the large chunks they are loaded with 40% gelatin powder and broken up.

Loading and Hauling

Columbia officials gave considerable thought to the selection of loading equipment, because optimum performance had to be achieved without overloading the crushing machinery. Another factor to consider was the maintenance of truck bodies as large dippers dumped their loads, because the ore was unusually heavy.

A Bucyrus-Erie 85-B shovel with a 3¼ yd. dipper was selected at first, and put to work. It performed satisfactorily, and later on three more 85-B's were added. The dippers were then standardized in 3½ yd. sizes. Still later, a Bucyrus-Erie 54-B with a 2½ yd. dipper was introduced for use in confined places. These shovels, with the exception of the Diesel 54-B, are all electric, like the blast hole drills, and take their power from the main generating plant.

The power shovels load broken material to a 16-truck fleet consisting of 2 Macks, 2 Euclids, and 12 Darts, all of 30-ton, 15 yd. capacity. Maximum haul road grades within the mines are 8%. The trucks usually back in under the shovel dippers in a single spotting arrangement, and manage to haul out about 250,000 tons of ore per month, plus about 75,000 cu. yds. of stripping, working two shifts per day. The company is now taking out about 3 million tons per year.

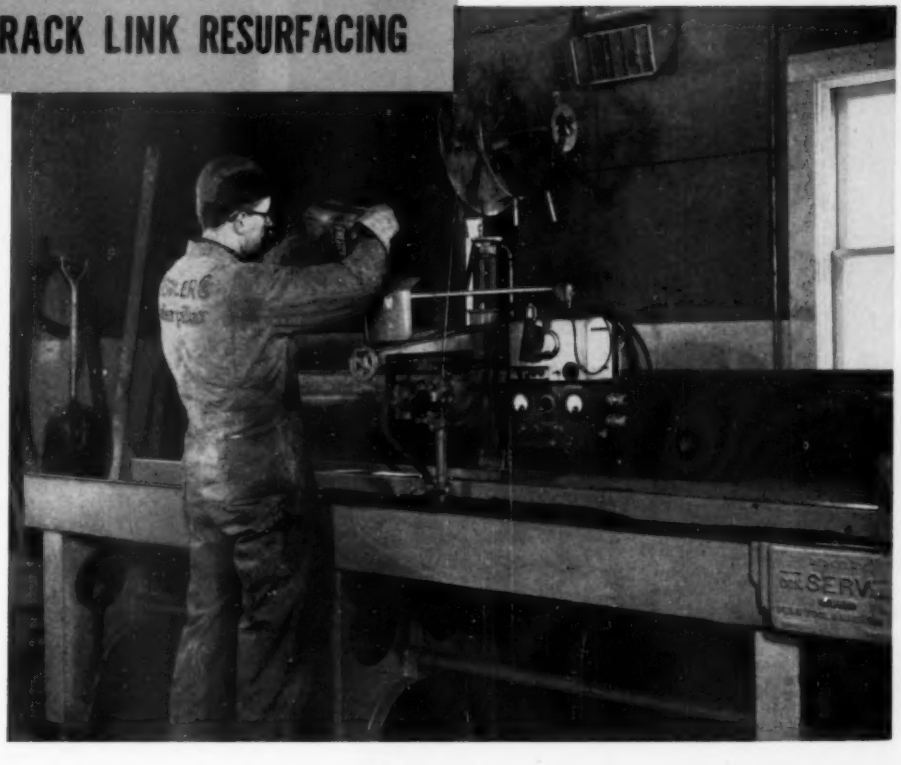
Crusher Reduction

As the loaded hauling units leave the pit, they head for a receiving hopper at the reduction plants at each mine, where the material is dumped into large steel hoppers, equipped with a power plate feeder which moves the ore to primary crushers. Driven by 200 hp electric motors, the 48x60 Blake and Allis-Chalmers primary crushers reduce the material in size and send it to 5 ft. Traylor Bulldog gyratory crushers, also driven by 200 hp motors. The gyratory crushers reduce the material to 2 in. minus, from which point the material passes by conveyor to a surge bin at the railroad tracks. A string of 200 cars shuttles back and forth over about 240 miles of Union Pacific Railroad to haul the material to the blast furnaces. Mining goes on 6 days a week, but there is sufficient surge capacity at the mills to keep them running on a 7-day basis.

The ever-increasing activity in southwest Utah in the Dixie ore deposits is mute evidence that Brigham Young's prophecy is coming true. For the earth and rock from Dixie is now helping to establish an industrial empire in the western United States, at a time when the nation sorely needs such production.

Operations of Columbia Iron Mining Company are under the general supervision of G. D. MacDonald, who has his headquarters at the Iron Mountain mine about 12 miles west of Cedar City.

AUTOMATIC WELDER SPEEDS TRACK LINK RESURFACING



A NEW Berkley Conserval unit which provides a fast, economical method of resurfacing track links, is hard at work for the Wm. H. Ziegler Co. Inc. at their Hibbing, Minn. shop. This is said to be the only installation of this unit in the upper midwest.

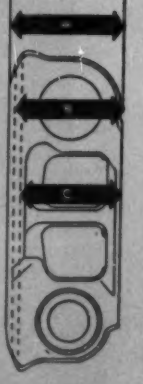
The Conserval was designed and developed through joint cooperation of Caterpillar Tractor Co. and the Penn Tool Machine Co.

Before this automatic machine went into operation at Hibbing the resurfacing of links meant that down time would pile up when excessive wear finally made some restoration necessary. Now, however, the links are restored to their original height before wear becomes excessive with the original shape and size of the link retained. With this early restoration, track life is increased and wear on rollers and idlers is cut down.

Speedy repair is made possible since the links can be resurfaced without dismantling them. The operation requires only removal of the complete track from the tractor, running it through the machine intact, and replacing the track assembly on the machine. The removal and replacement of the tracks, plus the short time required for the welding operation are the only efforts necessary.

Longer Machine Life

Many critical parts are in short supply these days. Rollers, idlers, track links and other parts which absorb much punishment are in heavy demand. Nevertheless, proper maintenance, frequent inspection at points of wear to prevent failures, and prompt rebuilding of parts before they are excessively worn (as possible with the Conserval unit) can mean longer life to all machine owners.



	A	B	C
D2	3"	2-7/8"	2-3/4"
D4	3-17/32"	3-3/8"	3-1/4"
D6	3-25/32"	3-5/8"	3-1/2"
D7	4-1/2"	4-5/16"	4-1/8"
D8	4-3/4"	4-9/16"	4-3/8"

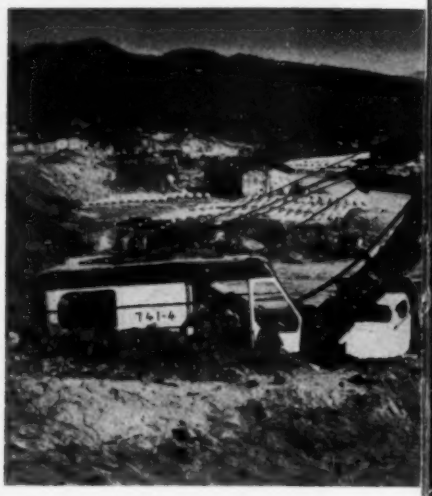
• This chart shows two levels of wear in relation to normal height. Track thicknesses listed here are for Caterpillar tractors. When dimensions approach those listed in column "B," resurfacing is in order.

Skyway to Eden

by Mary Saint Albans

Mexico's first superhighway, a toll road linking Cuernavaca and Mexico City, is scheduled for late spring or early summer opening. Cia. Constructora Juarez de Mexico, S.A. handled the 88 million peso (8.65 pesos equal $1.00) contract.

• Left: These Euclids carry volcanic rock below La Punta. This rock has tendency to interlock and its poor sliding qualities slow shovel loading.



GARDEN of Eden is the popular name for flowered, sun-drenched Cuernavaca which lies in a protected valley some 45 miles, via the present highway, from Mexico City. In the early 1860's, Maximilian and Carlotta travelled over cobblestones to their fabulous Borda Gardens estate in Cuernavaca, only a few blocks from the Cortez Palace now used as the Capitol building of the State of Morelos. The doughty conqueror, Cortez, had covered the same route, centuries before, on horseback. Not until the late 1920's did pavement replace cobblestones in Mexico's first asphalt road into the provinces.

Now, over the ancient mountains and following more or less the route of the abandoned and crumbling cobblestones, runs the country's first superhighway, soon to be opened to traffic. The road, several kilometers longer than the one in use due to design changes, will eliminate all abrupt curves and steep grades. Motorists may cut in half today's hour and three-quarters running time between the two cities.

Built 25 years ago when money was scarce and cars and tourists scarcer, the old road had to be constructed as cheaply as possible. Since it would have been expensive to cut away the myriads of curves and steep

• A full load of dark, dry volcanic sand is being dozed up an incline by this Caterpillar tractor near Coojomulco.

• Below: At Coajomulco a P&H shovel loads 5-yd. Chevrolet. In the distance looms snow-capped Popocatepetl (elevation 17,883 ft.).

• An International TD-18 with Bucyrus-Erie Bullgrader works on cut near Cuernavaca. Further down slope a Northwest shovel loads trucks. Cuernavaca lies in valley 45 miles south from Mexico City via present highway. Surrounding territory is about 2,000 ft. lower than Mexico City (elevation 7,347 ft.) region.

grades, they were left in. Grades on the new boulevard are limited from 2 to 4% (mostly 2%) and curves will be no sharper than 4° with two exceptions. These are the Balcon de Topilejo which is 6° and the impressive fill at La Punta leading into Cuernavaca Valley which is established at 10°.

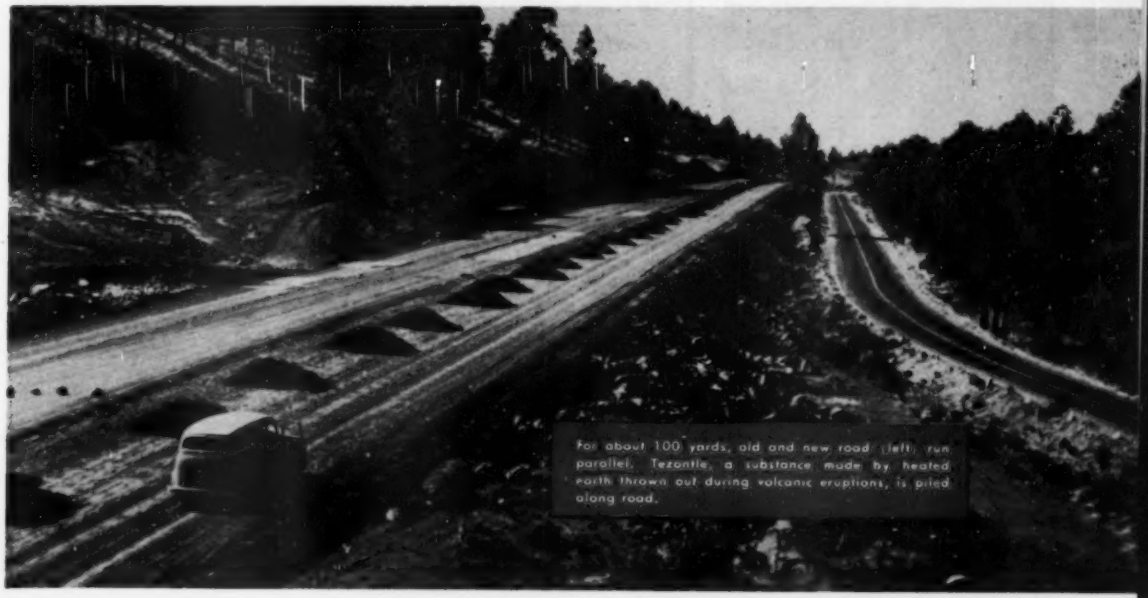
Striking Terrain

Such a stipulation on a road which rises to 11,000 feet near mile-and-a-half-high Mexico City, then drops to mile-high Cuernavaca over mountains of volcanic lava structure, means high-yardage cuts and fills. Two of these combined added up to 1.3 million yards of rock and earth, mostly rock, moved.

Power shovels are completing the following total excavation quantities: 5 million yards of volcanic rock; 1.3 million yards of igneous rock; 4 million yards of loose earth and rock.

Starting at Mexico City, volcanic areas extend from kilometer 18 to 26 and from kilometer 30 to 80. This tough digging coupled with constant rainfall, half of the year, and bitter cold much of the other half, makes a constant problem of how to keep up construction speed. Add to these obstacles the fact that much of the work is two miles above sea level which is punishing to workers.

Fogs cause constant shutdowns.



For about 100 yards, old and new road (left) run parallel. Tezontle, a substance made by heated earth thrown out during volcanic eruptions, is piled along road.

Rain and the ever-present dampness increase the menace of lava rock. Sharp and abrasive, the rock is tough on tires at any time; in wet weather, it has the cutting ability of a moistened grindstone.

Usually, solid volcanic stone is packed in layers from 6 to 10 feet thick between beds of loose rock and volcanic sand and sometimes a solid sand substance. It is impossible to finish drilling in one pass and be done with it. It becomes necessary to drill through a volcanic rock layer, dynamite, load out with the shovel, then repeat the cycle. Moreover, when drilling in stone and ash, the drill constantly slips from hard material into soft, thus delaying progress.

Attempted with conventional bits, rock drilling proved very slow. When tougher but hard-to-get carbide inserts were substituted, footage was increased 400 to 500% per shift. Dynamite, too, has a tendency to dissipate its force in the many crevices and leaks in volcanic rock, lowering the amount of material prepared with each shot.

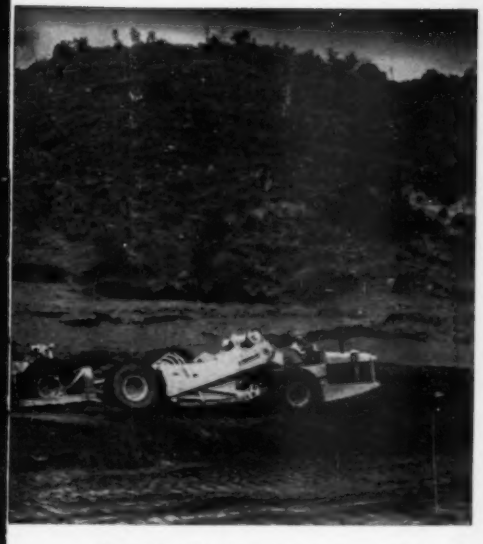
The rock also exhibits a tendency to interlock and has very poor sliding qualities, making shovel loading that much slower.

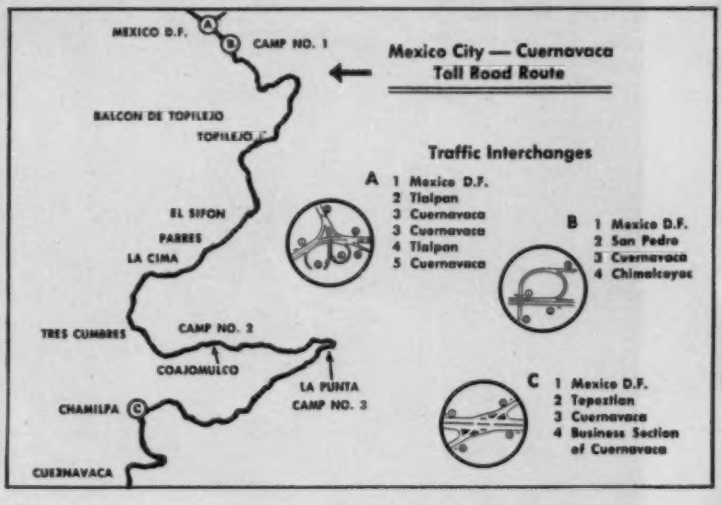
The entire job is an 88 million peso contract. The project begins at kilometer 18 and ends at kilometer 81 near Chimalpa in the suburbs of Cuernavaca. The contract stipulates that the road must be completed by May 31, 1952. After this date, there is a multa or penalty of 50,000 pesos per day. Two international conventions, Rotary and Lions, will be held in Mexico the early part of the summer and the federal government wants the tens of thousands of special guests to see the exciting new highway.

The contract was awarded early in 1950. It was necessary to find a strong company with competent head personnel and an abundance of machinery or the wherewithal to get it. Since the finest American equipment was selling at 8.65 pesos to the U.S. dollar and import red tape was con-

• Above: Two Caterpillar Diesel engines power Gardner batch mixer. It is fed from oil truck on opposite side. Above right: Near Tepilejo, volcanic sand is loaded by LeTourneau scrapers.

• Above: Antonio Amaro, of contracting firm; Ricardo Gomez, represents government and Juan Pinto, superintendent. Right: Allis-Chalmers tractor with Baker blade moves volcanic rock below La Punta. Below: Jesus Hidalgo (left) resident engineer at La Punta, and Antonio Amaro.





siderable, this was not an easy problem.

Cia. Constructora Juarez de Mexico, S.A. was selected for the job. Managers of this organization are Ingenieros Santos Amaro and Antonio Amaro, both engineers of high standing in Mexico and brothers of the late General Joaquin Amaro, the famous Secretary of War during the Calles regime. Ing. Santos Amaro makes his headquarters at the company's main office in Mexico City. Ing. Antonio Amaro keeps a watchful eye on the entire project daily.

The company's general superintendent is Ingeniero Juan Pinto Lujan. Ing. Pinto was in charge of the Baja California road construction for the same company. He built roads from Tijuana to Mexicali over high mountains and through some of the hottest desert country in the world, and from Mexicali south to San Felipe. With headquarters in Mexicali, he was able to study road building in Southern California and to attend for a while the Asphalt Institute. Ing. Pinto is probably Mexico's outstanding authority on asphalt paving.

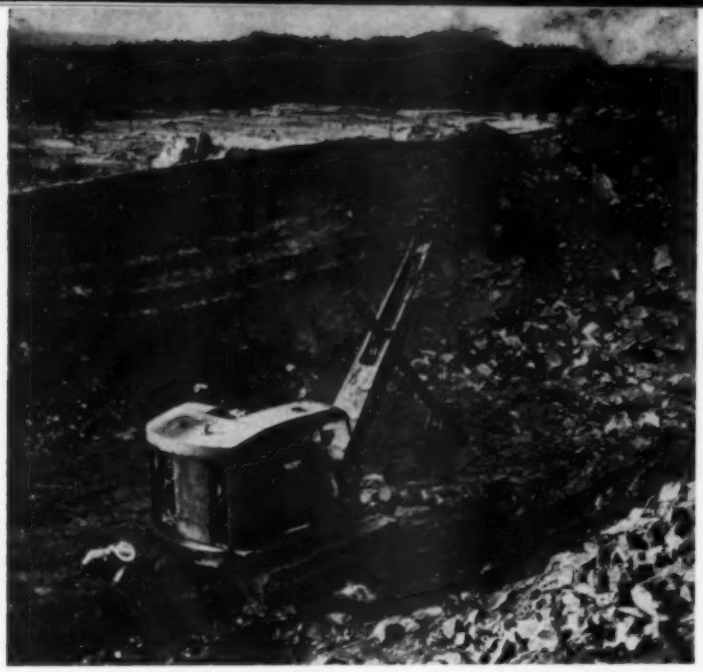
The resident engineer, Ing. Gustavo Pozos, is a technical expert on all phases of road building. Down at La Punta, where the 10° curve and the 55 meter fill are being constructed leading into Cuernavaca valley, Ing. Jesus Hidalgo is stationed. Experienced, able Ing. Ricardo Pineda Gomez is Jefe of the Division for the Secretaria de Comunicaciones y Obras Publicas, which builds and repairs all federal roads in the republic. He is in charge of two government camps with two resident engineers and many draftsmen and assistants.

During the last year Cia. Juarez bought over 16 million pesos worth of new machinery which with the large amount already working equals several times the amount of equipment used on any other Mexican project.

Much Equipment on Job

There are 23 shovels: Northwest, Bucyrus-Erie, Osgood, Marion, P&H, Koehring, and Schield Bantam; 31 tractors include 13 Caterpillar D-8's, 10 D-7's, 5 Allis-Chalmers HD-19's, and 3 Internationals TD-18's with Bucyrus-Erie dozers. There are also

● Bucyrus-Erie 22-B shovel reveals strata of volcanic rock near roadway summit of 11,000 ft.



• For 18 months this Bucyrus-Erie 22-B shovel (one of several on the job) dug volcanic rock at 10,500 ft. altitude.

13 scrapers, 14 motorgraders, 17 compressors, with 2 Tractairs, LeTourneau rooters, 2 sheepsfoot rollers. A 55-ton Southwest roller drawn by a Caterpillar tractor, 12 three-wheel steel rollers, 6 Bros pneumatic rollers drawn by Allis-Chalmers tractors, and a Gardner-Denver paver are working. Many small pumps, 6 Rex mixers, 1 Smith and 1 Jaeger mixer are on the job.

Nineteen Euclids of 12 yards capacity, 50 Chevrolet and Ford dump trucks of 4 yards capacity, 8 Koehring Dumptors, 6 Tournapulls, and 6 Tournadozers handle the hauling. Five Cedar Rapids rock crushers, 2 Universal crushers with Le Roi motors, a Pioneer and a big, new Austin-Western crusher are spotted at strategic positions along the highway. Eight Lincoln electric welders keep machinery in repair. Nine electric light plants provide light for night shifts. Five railroad tank cars bring gasoline and Diesel fuel to the job.

A complete medical unit with two doctors and several nurses is stationed at kilometer 18, the main camp where the road begins. These doctors are young women and are very capable. The company goes on the theory that older doctors will have already found their places in the medical world and will not take such a job and their men will be well cared for by brilliant young medical women. In Coajomulco, farther from Mexico's hospitals, a male doctor is on duty day and night.

As soon as you hit this new highway branching off from the present one at kilometer 18 you see looming ahead the gigantic cut, Balcon de Topilejo. The excavation involved moving 700,000 cubic meters of rock (1 cubic meter equals 1.3079 cubic yards), a job, at this writing, just about completed. An entering brecha or access road was made from the present highway at kilometer 26 and here began the shovel excavation with a Northwest, two Marions, 362 and 93M, two Koehrings, an 810 Osgood, and two P&H's.

Happily this hill was igneous rock which slides much easier than the volcanic lava encountered elsewhere. Much of the material was cast to build up the sides. Five Tournarockers filled lower levels and Caterpillar tractors kept the ever-widening road cleaned up. Six Gardner-Denver compressors with Cat D 13000 Diesels provided power for rock tools.

Here, as along the sides of every cut, rock masonry was used for 7 ft. ditches. Not feasible in the United States because of the cost of cleaning, more economical hand labor here made rock side ditches a feature of all mountain roads. A retaining wall runs for 100 meters along the Balcon; it is 20 feet deep and extends 2 feet above the road level.

For 12 months, at El Cantil on the old road a Northwest 25 dug out andesite rock which was crushed in three Cedar Rapids crushers and a smaller Pioneer. Two Schield Bantam shovels loaded dump trucks with the gravel. Now, far to the left of the new road a Koehring is digging andesite while a Caterpillar tractor loosens the material.

Difficult Compaction

All fills according to Ing. Pinto were compacted as much as possible but there is too much rock mixed with dirt to insure the desired 100% efficiency. Because of the large size of the stones, foundation layers are, pre-

• Surrounded by jagged volcanic rock is this Marion 93-M shovel.

force, from two to four feet instead of the usual eight to ten inches. Surprisingly a 90% efficiency was attained, the rainy season causing but little settlement.

From kilometer 30 to kilometer 65 selected materials are made up of tezontle and crushed rock or andesite. Tezontle is a peculiar substance made by heated earth thrown out during volcanic eruptions. It is a combination of ground-up hard lava and ash. It does not have to go through the rock crusher but is crushed by road rollers after being dumped in piles on the highway and is cheaper than the gravel. On these 35 kilometers, 250,000 yards of tezontle mixed with 60,000 yards of crushed andesite were blended by motorgraders as base aggregate.

Because the tezontle is much softer than rock, pneumatic rollers are used on this stretch: Six motor graders move 9,000 meters of selected material a kilometer. Austin-Westerns, Caterpillars, and Adams are on the job while 3-wheel steel rollers are Huber, Buffalo Springfield, and Austin-Westerns.

Two inches of black top over a prime coat of MC2 is followed by an MC2 road mix. A seal coat of RC3 covers the completed pavement. Asphalt is brought in trucks from the oil city of Tampico 400 miles east.

The road is twenty-two meters (1 meter equals 3.2808 feet) wide with a 6 ft. wide center strip to be planted to trees and shrubs. Every three miles, center strip and opposite lanes are widened so that motorists can turn around, but a wire fence will prevent cars from leaving the highway. Once on the road the motorist either reverses his direction or goes to his destination. This road is toll, rate not yet announced. Those who like a drink and/or a bite of lunch en route or perchance a ramble into by-ways for a picnic or a look at the view, will choose the old highway, still in good condition.

Underpasses or overpasses and additional side lanes take care of local traffic at the three villages either bisected by or near the road.

Tres Marias or Tres Cumbres (name comes from the three volcanic peaks behind the windblown 10,500-feet-high village) where for decades motorists have stopped for warming drinks and tacos, will be razed. This little town made up of two long rows

• At La Punta, Euclid dumps fill. The 10° curve here is greatest along construction route.

• La Roi compressor powers rock tools working below La Punta.

• Closer view shows La Roi-Cleveland rock drill in action.

• La Roi Tractair with 105 cfm compressor powers blast hole drill.

• Above: Between Coajomulco and La Punta, International TD-18 with Bucyrus-Erie Bullgrader pushes through volcanic rock. Above right: This Austin-Western rock crusher is operating at Coajomulco.

of frame buildings bordering the road will be demolished and shop owners and residents moved to new cement houses a block to the east. Here the old highway will detour while the wide new one will gobble up the present Tres Marias, main street and all. In this section a ¾-yd. Bucyrus-Erie 22-B shovel is now finishing volcanic rock and earth excavating.

Establish Second Camp

Next the road jogs to the left, traversing a forest of pine trees with soft earth below. However, before Coajomulco, the second main camp is reached, volcanic structure appears again. Early in 1951, two Schramm compressors, two Northwest shovels, Euclid trucks, Caterpillar tractors, and two Internationals with Bucyrus-Erie dozers went to work in this region. Later 5 Le Roi compressors, 2 600 D's, 2 500 D's, and an Air Master, an Osgood 1000, and 2 Tractairs were added. A P&H shovel moved in to excavate for the underpass. Concrete for this underpass and the cement strips was prepared in Rex mixers.

Beyond the camp house and shops and supply buildings, the Austin-Western crusher is stationed.

Except for the two kilometers north of La Punta which is solid volcanic rock, the nine kilometers between this camp and La Punta as well as the La Punta region is composed of 6 ft. layers of volcanic rock, ash and sand, sand and rocks. As work advanced more shovels were brought in and the other machinery at Coajomulco was gradually moved south. The Tractairs cleaned up the sides of the road with plugholes. Five Koehring Dumptors did the short hauling. A Cedar Rapids crusher was stationed near La Punta and the Schramm compressor and Le Rois were moved farther along as needed.

Five months ago a new permanent camp was set up at La Punta just before the road makes the 10° curve over the 55 meter fill to enter Cuernavaca Valley. Over 300,000 cubic meters (1 cubic meter equals 1.3079 cubic yards) of material are being moved for this giant fill. The pear shaped curve is almost a kilometer long and opposite the two ends culverts will take off water during the

Two drainage trenches, one inside

• A Marion 362 shovel is casting fill at Balcon de Topilejo. One of the two curves which exceed 4° is the 6° curve here at Balcon.

• Above: Allis-Chalmers wheeled tractors pull Bros pneumatic rollers. Above right: Rex 11S mixer is on scene as concrete sides are poured for median strips.

the pear-shape and one above, are under construction. The higher one will divert water from the mountain top; the lower will divert it from the barranca. These ditches are 2½ meters deep, 2 meters wide at the bottom, 6 at the top.

During the first month of La Punta operations, 9 compressors powering about 60 rock tools were used: Gardner-Denvers, Le Rois, and a Chicago Pneumatic. Now five are operating. These five prepare about 3,000 cubic meters a day. Later on the Tractairs will be brought in to smooth rough spots along the edges. Six thousand boxes of 40% granulated dynamite are being used at this point.

At the beginning, the curve excavations were attacked through three access points. Northwest, Marion, P&H, and Osgood shovels were employed. Caterpillar motorgraders worked on the preliminary road over which Euclids and Tournarockers dumped earth to fill the great cavity below.

A D13000 Caterpillar light plant of 75 kwt output provides light for the camp and power for radios. One hundred men live here; 200 more are trucked in from Cuajomulco and Cuernavaca. The local jefe, or superintendent, Ingeniero Jesus Hidalgo and several mechanics drive the long distance from Mexico City daily. Ing. Hidalgo leaves at 5:30 in the morning, gets home at 8 or 9 in the evening.

Men who live at the camp eat in the cookhouse; lunches are brought in from Coajomulco for the others. They breakfast at 9:30, lunch at 3:00 in the afternoon. The shift, from 7:00 AM to 6 PM includes one hour for meals. About two hours overpay time is the daily average. Night men work from 6 PM to 4 AM. On Saturday, the day crew knocks off at 3:00 in the afternoon and work stops until Sunday night except for maintenance crews.

This author had breakfast at 9:30 at the camp with the men and reports that they eat very well. You seldom are served butter in Mexico, outside of the big hotels, but slabs of it were on the table and men speared it readily. Steaks, two or three steaming chili and meat dishes, hot beans, hot tortillas, sweet bread, and mugs of steaming coffee with cream were brought to the oilcloth covered table.

Below La Punta another crew works the 19 kilometers to Chimalpa with a small camp along the way and the main one at the little town of Buena Vista. Workers are brought to the job from this main camp in trucks.

Five Allis-Chalmers HD-19 tractors with Baker equipment, 3 Osgood shovels, Euclid trucks, a 600 D Le Roi powering 5 Gardner-Denver pistoles (air tools), two other Gardner-Denvers and a small Schramm are now at work. The Schramm compressor is hitched to a Jeep and moved to shovel regions when the volcanic rock, already split by dynamite, proves too big for the dipper to handle. Near Chimalpa, 2 Rex 4S mixers make concrete for the center strips.

From this little town the road is taken over by the state government. Beyond Cuernavaca a new speedway is under construction to go on to Acapulco. It, however, is only half as wide but, even so, the new road from Mexico to the Pacific coast road will, according to authorities, cut the present seven hours to Acapulco to less than four.

• Osgood 1000 loads Euclid below La Punta.

• Excavation, sanitation, and detective work are all part of the job for John B. Willsey, trash disposal superintendent for Orange County, Calif. Here he talks to his boss, county road commissioner Harold Sprenger (seated).

They're Never

LATE LAST FALL, just before the Christmas rush, John B. Willsey found 15 unused brassieres—the big size without padding—in a trash pile on the county highway right-of-way near Santa Ana, Calif. Willsey, who is superintendent of disposal areas for Orange County, Calif., is not the type of man to go poking around into brassieres at random, but these excited his professional interest.

For one thing, they were new. For another, they had been dumped along the highway in defiance of the law. Why? Why hadn't they been placed, along with the other trash, in one of Orange County's nine sanitary disposal areas?

When Willsey found out, after several weeks of detective work, he had uncovered a shoplifting setup which made Orange County sheriff's deputies whistle in amazement.

Far from being amazed himself, Willsey took the brassiere incident in perfect stride as a part of the day's work. As head of the county's many public trash-disposal areas, Willsey has one of the most interesting jobs an excavation stiff ever latched onto. There is seldom a dull moment in his $5,000-a-month total budget operation.

Every month, Willsey's tractors and scrapers will move about 40,000 cubic yards of dirt. There will be days when one dump may get 2,000 orange trees from an orchard being razed for a building subdivision. There will be Sundays, and holidays, when 300 truckloads of trash will be dumped in one disposal area alone. Board of Health inspectors will search everything at intervals for rats or mice—and they'd better not find any, either, because once some rats with bubonic plague almost got loose in California.

Willsey even knows the latest wrinkle in the scrap metal drive. He's dealt with it first hand. Teen-agers steal automobiles, drive them to some remote spot, set them afire, and return with a truck and cutting torches when the junk has cooled. It takes less than an hour to cut up a car and load it out. And there are places where this scrap metal brings good money, until the law catches up with the proprietor.

A Big Operation

Measured by almost any standards, the operation of Orange County's sanitary disposal areas is big business. It was back shortly before World War II, when the semi-rural areas around Santa Ana, Orange, Laguna Beach and some of the other cities began to mushroom wildly that the County Board of Supervisors realized the advisability of some sort of public disposal areas.

The very fact of a growing population pointed up the ever-increasing load of old cans, bottles, trash, papers, wood scraps, and other debris. There were a few privately-owned disposal areas, especially over in neighboring Los Angeles County, but the proprietors of these establishments would charge a man up to $7.50 for dumping one truckload of trash. People wouldn't pay it. Instead, they drove somewhere off the state highway system to a county road, pulled over, and dumped the rubbish on the right-of-way. The need for public disposal areas was plain to see, because roadside maintenance costs for clean-up work were mounting.

Since the need for these areas was

• Right: Closely behind International TD-18 and Bucyrus-Erie S-91 scraper, Caterpillar D4 and shop built scarifier rips hard clay. Far right: This Ford mounted Roto-Pac must be closely watched to make certain it doesn't crumble ditch bank.

first foreseen, nine disposal sites, strategically located close to centers of population, have been established. A staff of 13 custodians and equipment operators keeps the areas open to the public 24 hours a day. Like Topsy, the thing just grew until today the Orange County disposal program is rated as one of the finest in the nation from the standpoint of order, cleanliness, efficiency, and low cost. The $5,000-a-month operating budget, for example, takes care of trash from almost half a million people.

Cut-and-Cover Method Used

Orange County uses a cut-and-cover disposal method in all its disposal areas which is designed to improve the value of the property by raising it in elevation, making it more stable through compaction, and by miscellaneous grading to improve the general contour. The method is an adaptation or improvement on the first cut-and-cover scheme, in which a dragline was used. Orange County uses tractors and scrapers for two principal reasons: (1) costs are low and (2) the trash can be compacted in the trenches by the same tractor which handles the scraper.

Two tractor-scraper combinations are used. An International TD-18 with a matched Bucyrus-Erie S-91 (8-yd. struck capacity) scraper works continuously on trench excavation, and the TD-18 also does work on compaction. The TD-18 in this unit is equipped with a Bucyrus-Erie power control unit and a cable-controlled bulldozer blade, which can be picked up in a few minutes for levelling when the machine is on compaction.

The second combination consists of a Caterpillar D7, with a Southwest 8-yd. scraper.

The selection of 8-yd. scrapers and tractors the size of the TD-18 has proved wise, for the nature of the excavation job matches equipment of this size. Moreover, Orange County already had on hand a truck and low-bed trailer capable of hauling this equipment around, so by selecting the TD-18 and S-91 scraper, the extra expense of larger trailer equipment was avoided.

"Sanitary Disposal Area" is a better name for county-operated-grounds which catch trash — and criminals.

Considering the excavation in its entirety, scrapers do a good job. Soil formations in the nine disposal areas range from pure sand to stiff, cemented clays, but practically any type can be handled with ease and without push loading. Some of the stiffer clays respond to scarifying, and if the D7 can be spread to pull a heavy shop-built ripper through this formation, heaping scraper loads are the result.

After a great deal of trial and error, Willsey's crew has arrived at the best size of trench to handle the input of trash. Where ground-water conditions will permit, a trench 20 feet deep, 500 feet long, and 26 feet wide with near-vertical sides is about right. The TD-18 and S-91 scraper will muck out an excavation of this size in from six to ten 8-hour working shifts, depending on the formation. In all cases the hauls are kept down as much as possible. Usually the excavated dirt is stockpiled to one side for use later when the trench is full.

When a trench has been excavated, the TD-18 and its scraper move on to another disposal area for excavation there. By good scheduling of the dirt-moving part of the work, the equipment stays busy day after day without lost time or unproductive rental cost, and there is always a place available on the disposal areas for the public to dump trash. The county figures its rental including depreciation cost on the S-91 scraper at $2.40 an hour; on the TD-18 at $3.00 to $4.50 an hour; and on a dozer at $1.00 per hour.

In an effort to boost excavating efficiency still higher, an experimental method is being tried on one of the disposal sites. Two main trenches are dug at one time by the scraper. The two trenches are about 140 feet apart; in other words, the operator skips five trench widths to give dumping vehicles plenty of maneuvering room. When the first trench then gets approximately enough material to make a 3-ft. lift, dumping can proceed in the second

Called 'Dumps'

• The S-91 scraper dumps load of dirt in temporary storage area. Later on dirt will be used to cover and raise area. Trash disposal invariably raises value of land.

trench in case the equipment can work to better purpose on one of the other areas. This method promises to give extra time for scheduling tractor operations, which will pay off in high efficiency.

There are a few little tricks connected with this type of excavation which pay good dividends, and Willsey's men found them out through observation, trial, and error. Between each trench, for example, they leave a 3-ft. minimum cell of solid natural earth. This makes the edge of the fill more stable and makes it tougher for rats to get started. Another good practice is to slope the approach away from the trench edge. It's a safety angle which has paid off again and again, because it tends to make a dilapidated old trash truck with bad brakes roll away from the open ditch, rather than toward it. This graded slope is aided somewhat by dumping in a ribbon of dirt one scraper width wide just along the edge of the trench. A tractor with an angledozer then stacks this material to form a small berm, and it acts as a stoplog in case the custodian is busy or away.

"A lot can be done with excavating equipment and common sense," is Willsey's explanation for the little things which have prevented many an accident. In the ten years since Willsey has been in charge of the disposal program, only one truck ever backed into a trench, and that was the driver's fault. Another truck burned up because the driver backed up on top of the edge of a fire and got the load in the truck bed ignited.

Disposal Management Important

Anybody who believes the operation of a modern sanitary disposal area is simple may be surprised at the complexity of the average operation. Nowhere is the human equation more in evidence. To be handled right and to its best advantage, the disposal area requires the intelligent cooperation of every citizen who drives in.

Orange County would much prefer to have able bodied older men for custodians than young men. They get along better with the public, and have more mature judgment about running the area. For example, suppose a house building contractor dumps 2,000 green orange trees on the area in a day's time. Green orange wood by itself will scarcely smolder, much less burn. The older men seem to have the ability to pick trash trucks loaded with old roofing scraps, rubber tires and other inflammable materials, and to get the drivers to dump these loads among the orange trees. Then the wood will burn fiercely, and the mess can be reduced to ashes in a 24-hour period.

The trenches are filled by end-dumping the trash trucks over the edge the entire length. Then a ribbon of material is dumped from the opposite edge. When enough material has been dumped in to make a 3-ft. lift, the constantly burning fire is allowed to die or burn itself out, and the TD-18 or the D7 moves in to level and compact the lift. The material is leveled off, and repeated passes of the tractor mashes the cans and other noncombustible rubbish down into a solid, unyielding mass.

When a tractor has finished compacting a trench lift, its operator takes several hours off to clean up the tracks and undercarriage. Old bedsprings and wire of all kinds get tangled about and wrapped around drive sprockets. Prompt removal of this material after the compacting job is one of the reasons Orange County has little or no trouble with track maintenance on either of its tractors.

One of the worst things on rubber tires of vehicles using the dump is the plastic beer bottle. It cuts rubber so badly that Willsey is seriously considering a thin lift of dirt over each course as the fill progresses. This has not yet been tried, but it may be in the near future.

When a trench gets over 75% full, the timing between trash disposal and new excavation gets close. When the trenches get that nearly full, the dozer begins to slope the material slightly, stacking the trench full at one end. This full-depth disposal is then closed up closer and closer to the end of the trench. Finally, during the last few days, the disposal area gets smaller and smaller. The custodians try to arrange the closure to fall during the week, when the area is least busy. When the last material is dumped in, burned, and compacted, the new trench is ready. The use of a two-trench system on the experimental dump may point a way toward the riddance of this final closure problem.

Sundays and holidays are busiest, and county custodians are on hand at each of the dumps on those days without fail. The one custodian at each dump sees to it that trash trucks come in safely, back in at the best locations to facilitate burning, and get out in a hurry. A salvage concession is given to only one firm, on a rental basis, and beyond that no loitering or salvage is permitted. Los Angeles junk dealers sometimes visit the disposal grounds to pick up things to sell, but the concession rights of the current holder are enforced.

The worst thing that anyone can bring in is old palm tree stumps and trunks. They will not burn, and at

best it takes years for a slow, fermenting rot to take place. As a rule these things are buried in low spots, or placed in the bottom of trenches. A custodian at one of these areas is paid from $211 to $265 per month for a 40-hour week. In addition, Orange County grants a 15-day paid vacation each year.

Roadside Cleanup

The establishment of 9 disposal areas has not yet quite cured the roadside dumping of rubbish, so one man with a truck patrols county highways to clean up trash and haul it to one of the areas. Willsey himself drives about 30,000 miles a year patrolling the county highways and directing, via shortwave radio, where cleanup work needs to be done.

Strangely enough, some of the worst offenders in this regard are servicemen stationed with their families at some of the nearby defense bases. Rubbish dumped along a roadside can be traced to the owner in many cases through old letters, magazine addresses and so on. Willsey has a system for permanently curing the people who carelessly dump trash in this manner.

When he traces an offender down, he gives the man until 9 AM the following day to retrieve his junk, take it to one of the disposal areas, or face arrest. To make sure about this, he hands the man a note reading "Let this man dump this material." The note is addressed to the custodian. Willsey then checks back to make sure each note finds its way back to him, via the custodian, or the man finds himself in serious trouble. And it is never a pleasant job to visit an Orange County disposal area carrying one of these little notes. The note marks the person as a violator of all the laws of common decency, so that in itself is enough to make a man ashamed. In extreme cases where violators have to be brought into court, most justices and judges give $50 or $100 fines.

Never a Dull Moment

On roadside patrol especially there is never a dull moment, and any day can turn up something new. Willsey never knows from one day to the next what his investigations of roadside trash will uncover.

One day last year he discovered a burned automobile along the roadside. State laws prohibit moving an automobile until the owner's permission can be secured, so Willsey got busy tracing down the owner. When he found him, the man denied ownership. His suspicions aroused, Willsey called in the sheriff.

The case dragged on with all kinds of ramifications, and at one time several deputies were working with Willsey. When the entire case was finally solved, 100 juveniles in Orange County were under arrest and a string of 35 burglaries had been solved. The car had simply been burned one night by several members of the gang, hopped up on marijuana, to get even with the owner for some infraction of gang law!

Urge Good Planning

If any readers of this article are contemplating the establishment of a public dump, Willsey and his boss, County Road Commissioner Harold E. Sprenger, have two important points for their Orange County, the two points are:

1. Never call them "dumps." People will shy away from "dumps," resist their establishment in the neighborhood, and antagonism will be aroused. Call them "sanitary disposal areas" and the same people will cooperate magnificently. There is something about the semantics, apparently.

2. Select the disposal areas with special emphasis on prevailing wind drift, rather than on types of soil. According to Orange County officials, their modern excavating equipment will handle all soils encountered with good efficiency, but smoke drifting from a dump—pardon, from a disposal area, will cause all kinds of complaints if it drifts over a populated area.

Rain or shine, day or night, through everything from routine work to crime investigation, Willsey, Sprenger, and the 13 men who make up the disposal force take things as they come to make Orange County's disposal system one of the most outstanding in the country.

● When trash and unburned rubbish get deep enough in ditch to make 3-ft. thin TD-18 will move in and compact material. This method is generally used on all sites. Below: Palm logs and stumps are worst things Willsey has to contend with. He dumped these in a low marshy spot and is studying how to bring lift of trash over area to cover it all.

• Dusty air means "bad breathing" for your Diesel engine. When job conditions are extremely dusty, an extended air cleaner intake does wonders in providing clean air for your Diesel.

Watch Fuel and Air Supply to Up Your Diesel's Output

by Fred J. Shreck*

In tractors, self-propelled scrapers, shovels, cranes, hoists, mixers, etc., the Diesel engine has proved itself by billions of hours of productive work using low-cost fuel and turning out energy under the most rugged working conditions. Tough as it is, the Diesel must be treated right.

THE two essential items in the Diesel's "food supply" are clean fuel and clean air. Diesels are economical with fuel, but they suck in air like a mile runner on the last lap.

For example, a 1,000-cubic-inch Diesel engine, running at rated rpm, breathes in approximately 865 cubic feet of air a minute, or more than 415,000 cubic feet of air in eight hours. This is enough air to fill a building 100 feet square and four stories high.

Fuel and air fed to the Diesel must be clean. That's why Diesel engine manufacturers lavish such care on the design and manufacture of fuel filters and air cleaners. Without these units, the rugged, durable Diesel would strangle itself, choked by dirty air or damaged internally by foreign matter in the fuel. It pays big dividends to provide proper storage for fuel and give regular attention to the air cleaner.

Naturally, it is smart practice to use only the grade of fuel recommended by the manufacturer. Some fuel suppliers will offer substitutes that are "just as good" to hear them tell it. But the recommended grade of fuel will produce the amount of horsepower at the drawbar which the manufacturer guarantees. It doesn't make sense to use inferior fuels and thereby lose power.

*Supervisor of Service, Industrial Power, International Harvester Co.

Storage Precautions

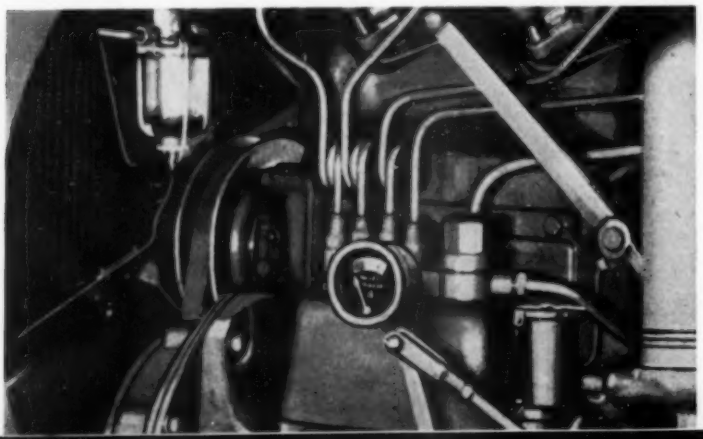
Buying good fuel is only the first step. Proper storage of fuel is equally important. Fuel may be properly stored either above or below ground, but the latter method is preferred since underground temperatures are more constant and there will be less condensation in the tank. However, in either method, provision should be made for accumulation and removal of water and sediment from the tank.

The pump suction pipe should not reach this part of the tank. Then there will be little chance of sucking up water when you pump fuel from the tank into tractors or other machinery. A screen filter should be provided in the storage tank filler neck, and, of course, the filler opening should be kept carefully capped. The nozzle of the fuel tank hose should be hung in a protected place so that dirt and water cannot enter the supply from that spot.

Occasionally, fuel from small containers is emptied into the storage tank. This is bad practice since these small amounts of fuel frequently contain some gasoline or kerosene, and even these small quantities can contaminate the entire fuel supply in the storage tank. It is far better to use this fuel to wash parts or dispose of it.

Watch the glass water trap in your tractor engine. If water is accumulating in these traps at a rapid rate, it's a pretty good indication that contamination is taking place where the fuel is stored.

All these precautions add to the life and efficiency of the fuel filters which guard the injection systems of your



• Watch this dial. When you find low readings on this fuel pressure gauge, it's a good indication that your fuel filters need changing. Careful storage of fuel will greatly lengthen the periods between fuel filter changes.

Diesel engines.

Fuel filters are the final guardians of supply. They must be nearly 100% efficient to prevent foreign matter from entering the injection system where the extremely close tolerances cannot accept it. A Diesel injection pump is built to precision tolerances finer than the finest watch, and watches cease to work when dirt enters them.

Low readings on the fuel pressure gauge ordinarily indicate a stopped-up fuel filter. If the filter must be changed, replace it with the type approved by the manufacturer. Be very careful to insure positive sealing so that the filter will work efficiently. Poor sealing makes the best fuel filter almost useless. However, you won't have to change fuel filters very often if your fuel supply is properly stored and cared for. Since fuel filters are not cheap, it pays to store your fuel properly.

Air, too, must be kept clean before the engine breathes it. Diesel engine manufacturers design and build adequate air cleaners into their products so that the engine will get enough clean air to develop its full rated horsepower.

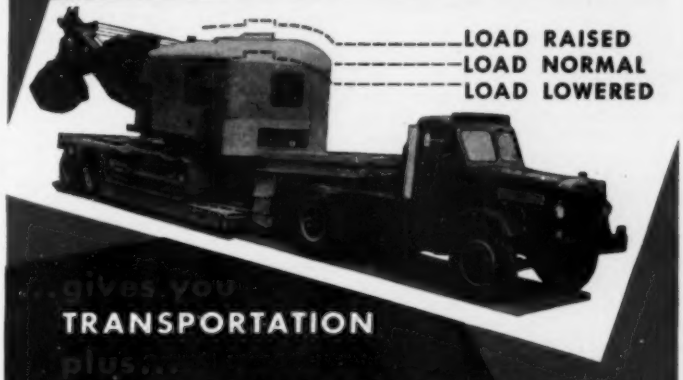
Extend Intake Pipe

On construction jobs the air is frequently extremely dusty, and it is wise practice to extend the air cleaner intake pipe so that it will reach cleaner air above the dust level.

Under dusty operating conditions, it is important to service the air cleaner at frequent intervals. The oil tray should be removed and washed and then filled to the proper level with the weight of oil recommended by the manufacturer. Oil changing alone is not enough. Be sure to remove the screens in the upper portion of the air cleaner and wash them in kerosene before replacing them.

Even though the air cleaner is functioning perfectly, there are other spots which can develop air leaks and allow dirty air to enter the engine. For example, leaks are likely to develop at the connection between the air cleaner and the intake manifold and between the intake manifold and the cylinder head which is sealed by gaskets. These points should be checked at frequent intervals by taking an oil can filled with water or kerosene and squirting this fluid around the joints. If any liquid is sucked into the engine, there is an air leak at that spot. Such air leaks demand immediate repair to prevent serious damage to the engine.

Only ROGERS TYPE "TPG" Power Lift
DETACHABLE GOOSENECK



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TRANSPORTATION
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LOAD MANIPULATION

Stoops to clear low overhead obstructions.

Raises its deck to clear high banked crossings.

The unique deck raising and lowering feature of this Rogers trailer makes load manipulation a distinct advantage under many hauling conditions.

Low bridge or high road bed obstacles are easily overcome. Deck is raised or lowered to alter overall height of load for overhead clearance. Raising deck clears high road beds.

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THE ROGERS Power Lift DETACHABLE GOOSENECK CAN BE OBTAINED ON ANY STANDARD ROGERS DROP DECK TRAILER

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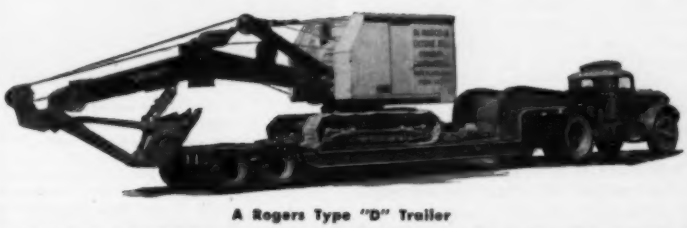
A Rogers Type "D" Trailer

News from the Field

Colorado Poll Indicates Proposed Toll Favored

Colorado residents who have traveled over the new Denver-Boulder toll highway favor construction of a similar turnpike for traffic between Denver and Colorado Springs, according to the findings of Research Services, Inc., in a statewide poll taken for *The Denver Post* and published in that newspaper.

The question asked in the poll was: "How do you feel about a toll road between Denver and Colorado Springs? If the price should be about 75c a car, but it would be an improved and better highway, would you favor or oppose this road?"

Fifty-three per cent of Denver's residents queried favored the highway against 37% opposed, with 10% undecided.

Strong support for the proposal also was found in Colorado Springs, where 46% favored the highway, 42% were opposed and 12% undecided.

Less support was found in outlying sections of the state, where 39% favored the idea, 37% voiced opposition and 24% were undecided.

The survey found that six of 10 persons in the state who have traveled the new Boulder toll road favored a similar Denver-Colorado Springs turnpike, compared with four out of 10 among those queried who had not driven over the Denver-Boulder route.

U. S. Iron Ore Production Sets Record in 1951

More iron ore was produced last year in the United States than ever before and more was imported than ever before, American Iron and Steel Institute reported recently.

The iron and steel industry was well taking care of its present needs. It was also moving fast in protecting its future reserves by developing ways to use taconite and other low grade ores and by reaching out for distant supplies of ore.

The amount of foreign iron ore brought into this country last year rose nearly 24% to almost 11.4 million net tons. The iron mines in the United States produced an estimated 130.4 million net tons, an increase of 19% over the 1950 output of usable ore. Of the latter total, 105.2 million tons, or 80.7% came from Lake Superior mines which in 1950 yielded 81.2% of the total. Western mine output rose 42.5% last year to 9,352,000 tons.

Steps are being taken to supplement the remaining high grade, direct shipping ores of the Lake Superior open pit mines. One of the principal ways in which this is being done is by turning hard taconite rock into a usable product.

In addition to other domestic ore developments, several iron mining projects of major importance are underway in Canada, Liberia, and Venezuela, and explorations are being made in Peru.

New properties in Venezuela shipped nearly 712,000 tons last year, while the new property in Liberia shipped more than 123,000 tons. The new Cerro Bolivar project in Venezuela and another in Quebec-Labrador are expected to begin shipping to the United States about 1954.

The record high imports of foreign ore last year came principally from Chile (3.1 million tons); Sweden (2.8 million); Canada (2.2 million); and Brazil (1.2 million). Venezuela rose to fifth with about 712,000 tons followed by Algeria, British West Africa, Mexico, Tunisia, and Liberia.

Arctic Weather Stations Get Advice on Equipment

Two thousand miles north of Duluth, Minn., the only highways are air routes. Diesel tractors double as construction and transportation machines. Diesel motor graders maintain the vital airstrips.

Deep within this frozen wilderness the United States and Canada have established joint weather stations—one within 400 miles of the North Pole. Here, trained men send out radio reports every three hours, making long-range weather forecasts possible for North America.

Several joint weather stations have been established in recent years. A veteran Caterpillar service representative, Fred Moe, began his circuit of them April 6, 1952. His job was to provide technical advice on construction equipment being delivered to the stations.

The equipment itself was made ready for temperatures as severe as 65-70° below zero. Machines were dismantled for air shipment. Special

● One of the exhibits used in recent Congressional hearings on the bill to authorize Hells Canyon Dam was this photograph of the rugged Snake River site, with dam and reservoir superimposed. Situated on the Idaho-Oregon border, this Bureau of Reclamation storage dam would add 1,124,000 new kilowatts of year-around power to the northwest. Its power revenues could be used to help make economically feasible the irrigation of the 192,000-acre Mountain Home project in Idaho and of other blocks of arid land. Legislation which would authorize the project is now pending in Congress.

Bureau of Reclamation Photograph

care was given even to the preparation of packing boxes. The manufacturer used "the best wood available" to assure safer transport and provide material for lifting devices, etc., during reassembly. (Wood is a mighty scarce commodity above the Arctic Circle.)

Maximum weight for the airborne packages was set at 4,000 lbs. per package. Working under limitations of space, weight, and Arctic delivery, Caterpillar manufacturing and service people prepared Diesel D4 tractors, No. 212 motor graders and No. 40 scrapers for the trip.

All preparations were under the general direction of C. G. Dyer, who supervises the Arctic Operations Project of the U. S. Weather Bureau. Under winterization instructions from his office, all engines were equipped with ether starting aids. Light greases were used in the preliminary lubrication, while the oil was drained from crank and transmission cases.

Dyer and Moe met the 6th of April at Dorval Air Force Base, Montreal, Canada. Their party boarded a North Star aircraft of the RCAF which started them on the journey.

Though traveling for the first time with veteran weather bureau men, Fred Moe is no stranger to Arctic conditions. His regular territory during the past seven years has included Alaska, Yukon Territory, and British Columbia.

Place Time Capsule in Underground Garage

One of the nation's most famous excavation jobs was marked for posterity in Los Angeles when the new Pershing Square Garage was chosen as the storage site for a 100-year time capsule, to be removed and opened a century from now. The ceremony which marked the packing of the time capsule also marked the near completion of what will be the world's largest underground garage, whose builders are many months ahead of schedule (*Excavating Engineer*—Aug. 1951).

The steel alloy time capsule was made by Kaiser Steel Co. of Fontana, Calif., and is guaranteed by its manufacturers to last 25,000 years in a perfect state of preservation. Packed with microfilmed exhibits of art, culture, political, and economic exhibits and many other examples of contemporary California living, the capsule was buried in the base of a 30-ton concrete statue atop the structure. Among the microfilmed exhibits were stories of the construction.

The Pershing Square Garage construction was one of the major construction ventures in Los Angeles in

Continued on page 38

Frank Correale

Frank Correale, 60, died April 8, 1952, at his home in Hazleton, Pa.

Mr. Correale, a coal operator and contractor, became ill the 24th of December. His condition had shown some improvement and he returned home from the University of Pennsylvania hospital where he had gone for a checkup.

A lifelong resident of Hazleton, Mr. Correale started to work at 10 and continued his education through correspondence and night schools. After serving a carpentry apprenticeship he entered the contracting business. When World War I started he enlisted serving until February, 1919.

Later, he and his father formed the Correale Construction Co. At his death Mr. Correale was also president of the Shenandoah Mining Co., the Necho Coal Co., the Beechwood Transportation Co., Diamond Supply Co., and the Correale Mining Corp. These firms are engaged in strip mining and road construction in Pennsylvania, Virginia, and West Virginia.

Regional and state politics took up much of his time. A Democrat in county-wide politics, Mr. Correale frequently led a Republican group in Hazleton elections.

Mr. Correale served several terms as a Luzerne County prison commissioner. He retired from that post when his term expired in December. A Democratic state committeeman for several years, he was also a delegate to the 1940 Democratic National Convention which nominated Franklin D. Roosevelt for a second term. He was the Democratic nominee for state senator from the 20th District in 1938, but was defeated in the general election.

He was president of the board of St. Josephs hospital, Hazleton, and served as chairman of the campaign which raised $1.5 million to erect the new hospital. The coal operator was also chairman of the "Christian Friends of the Hazleton Jewish Community Center," which helped in a campaign for funds to erect a new center.

Mr. Correale was a director of the First National Bank of Hazleton, director of the Hazleton City Authority, and a former director of the local Chamber of Commerce.

Surviving are his wife, the former Elsie Corra; a daughter, Mrs. Donald Hanson, Hazleton; three grandchildren; two brothers; and four sisters.

Blazin' Up the Blue Ridge

TD-24s rip up 35,000 yards of rock that otherwise would have needed blasting

PUSHOVER FOR THE CHAMP. The toughest work comes easy for the Big Red TD-24. This great International crawler digs in with 148 maximum *drawbar* horsepower—the most of any crawler on the market.

HAPPY CONTRACTORS Allan Siler and Fred Moore. As Mr. Moore says, "There are two ways to move rock: this way and by blasting. Our TD-24s saved us a lot of money, working rock loose long after every other tractor was through."

It was rough work to build a modern road from Charlotte, N. C., to the cool resorts along the Skyline Drive, atop the famous Blue Ridge Mountains.

One cut and fill followed another—and one cut alone was 110 feet deep in solid rock.

That's where Macon Construction Company dug out 93,000 cubic yards of rock, and instead of blasting it all, they were able to doze and rip out 35,000 yards with two big red International TD-24 crawlers.

"We have rock here that you couldn't touch with a dozer, till the TD-24 came along," says ripper operator Roy Cantrell. *"Now we blade where we couldn't scratch before, and the ripper tears up rock that used to need blasting."*

And dozer operator Jess Leatherwood adds, *"My TD-24 pushes more, moves faster and handles easier than any other tractor—and I've run 'em all!"*

Get complete details on TD-24 capabilities from your International Industrial Distributor . . . and you'll be a TD-24 man yourself from then on in!

INTERNATIONAL HARVESTER COMPANY
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POWER THAT PAYS

with BIG RED TD 24

THE WINNING TEAM. "Deep down in the cut, it seemed every night would be the end of our ripping," says co-owner Fred Moore, "but the TD-24s kept right on going, showing how you can handle rock when you've got top power and traction."

Continued from page 35

recent years. Excavation covered a 30-foot-deep block 350 x 600 feet.

Acres of concrete slabs were placed in the 3-floor structure, which can store 2,000 automobiles in the heart of Los Angeles. The big storage space can be completely emptied in 27 minutes. Ford J. Twaits Co., Morrison-Knudsen Co., Inc.; and T-S Construction Engineers, Inc. were the joint venture builders of the $5 million structure. Excavation was subcontracted by C. G. Willis & Son.

The time capsule ceremonies were sponsored by the Los Angeles Downtown Business Men's Association, and presided over by Edward R. Valentine, president of DBMA; Harry Morrison, General Manager of DBMA; Actress Virginia Mayo; and Mayor Fletcher Bowron of Los Angeles.

● Packing the Kaiser-built steel time capsule at Pershing Square Garage ceremonies in Los Angeles are (left to right): Harry Morrison, general manager, Downtown Business Men's Association; Actress Virginia Mayo; Mayor Fletcher Bowron of LA; and DBMA President Edward R. Valentine.

Flood Branch Meets in New Orleans Next Year

The next annual meeting of the Mississippi Valley Flood Control Branch, Associated General Contractors of America, will be held in New Orleans in January, 1953.

Arrangements have been made with the Hotel Roosevelt, New Orleans, to hold this meeting on Saturday, the 17th of January, with arrivals on Friday and Saturday, the 16th and 17th of January, and departures on Sunday, the 18th of January.

The Hotel Roosevelt has reserved 100 bedrooms and 14 suites for the meeting. Reservations for the meeting should be made with the Hotel Roosevelt, to the attention of Al Bourgeois, conventions and advertising.

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HYDRAULIC
DIPPER
CLAMSHELL

Bolted sectional steel hulls for landlocked, inland waters

If you need a dredge, write us!

AMERICAN STEEL DREDGE CO. INC.
FORT WAYNE 1 · INDIANA · U.S.A.

DESIGNERS AND BUILDERS OF DREDGING EQUIPMENT SINCE 1905

Form Tennessee Group for Highway Improvement

Organization of a Tennessee PAR (Project-Adequate Roads) Committee, to conduct a campaign for long-range improvement of better roads and streets in the state, was effected by representatives of about 35 statewide groups at a meeting in Nashville.

The committee's objectives will include a priority system in designating roads and streets that are to be improved, establishment by the state legislature of a study commission to map a long-range highway improvement program, and elimination of the diversion of highway tax revenues to nonhighway uses.

Propose Idaho Legislation for Dredge Operators

Idaho Secretary of State Ira Masters has been informed by southcentral Idaho sportsmen that they will try to get on the 1954 ballot an initiated law requiring dredge operators to repair the damage they do to streams.

The proposed act's title would declare it to be state policy "to protect its streams and water courses from destruction." The measure would require that "ground disturbed by dredge mining be smoothed over and water courses replaced for fish and wildlife habitate and recreation . . . and that settling bonds be constructed to clarify waters."

The measure would fix penalties for violation and provide for injunctive relief.

Discuss Foundation Problem of New Orleans Structures

Had New Orleans' early settlers been aware, as engineers since have learned, of subsurface conditions, it might have been located farther up stream on firmer ground, it was ventured before the spring convention of the American Society of Civil Engineers, by Herman A. Huesmann, chief of the foundations and materials branch of the New Orleans District, U. S. Corps of Engineers.

Discussing the city's many foundation problems, the speaker included: Failure of excavation, riverbank and embankment slopes; failure of sheeting around excavations; and seepage and related quicksand difficulties. Though not as common as settlement of structures, he said, in some instances these conditions have been serious and costly.

Construction of the Veterans Administration Hospital building, due to

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A THOUSAND AND ONE

different ropes
Designed right—made right
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EVERY REEL of Macwhyte Wire Rope reflects a pooling of users' experience. Over the years this experience has been studied in the field by Macwhyte engineers. Your requirements dictate the design and making of Macwhyte Wire Rope for all equipment.

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be completed soon, was planned on the basis of the settlement conditions of the adjacent Charity Hospital, he said. "Special care was taken to design a foundation that would prevent excessive settlement." Engineers considered a plan to jet and drive piles through the sands and all of the compressible clay layers, but this was found impracticable as it would have required driving piles 145 feet down. Another method, also regarded impracticable, was to make a deep excavation so that the weight of the earth removed from the space occupied by the building foundation would approximately equal the building's weight. A combination of both methods was decided on.

The estimated gross weight of the building is 67,000 tons. About 36,700 tons of earth were removed and 2,030 wooden bearing piles were driven for the foundation. Computations were that a maximum settlement of 8 inches and a differential settlement of 5 inches could be expected. To date, at Charity Hospital, which was completed in 1939, settlement has reached 19 inches at center.

Rigidity introduced by girder walls should reduce the ultimate differential settlement of the veterans building to less than 3 inches, said the speaker. Thus far, the building has settled a maximum of 2.6 inches, and a maximum differential of 1.1 inches.

Ingenuity and Equipment Tame Missouri River

• This emergency levee was constructed by Ace Construction Co. and Parks Construction Co., both of Omaha, behind weak north levee protecting Council Bluffs. It was necessary to cut main line of Chicago & Northwestern and Illinois Central tracks in order to build this levee.

The mighty river met its master in the Omaha-Council Bluffs area, when the construction industry's "know-how," ingenuity, equipment, and dogged manpower beat the big muddy Missouri in the recent fight against time and surging floodwaters.

Faced with what appeared to be an almost hopeless task of protecting Omaha and Council Bluffs from the worst Missouri River flood in history, the Army Corps of Engineers mobilized the largest construction firms in the Omaha district to combat the approaching crest.

Friday, the 11th of April, was "M-day." Seven major contractors moved in with every available piece of equipment and an army of operators. Twenty-three miles of levees had to be raised an average of two feet to resist the unprecedented crest, since the Omaha-Council Bluffs levee system had been originally built to withstand a crest of little more than 26 feet with a few feet of freeboard remaining.

At the peak of the desperate battle with the river, some 20,000 men, including 2,000 contractors' employees, 7,000 U. S. Army troops, and about 11,000 civilian volunteer workers labored on the levees.

Within three days and nights of 'round-the-clock operations, the contractors and Corps of Engineers had succeeded in raising the entire stretch of levees with earth fill, crowned by wooden flashboards and reinforced with earth and sandbags. The fill was obtained from borrow pits which were sometimes located as far as two miles from the levees. Best estimates by the Corps of Engineers as to the number and kind of equipment used was 210 crawler tractors of all sizes and makes, 350 rubber-tired earthmovers, and probably 5,000 trucks of all sizes.

Contractors were assigned by the

V. M. Dobeus

V. M. Dobeus, 50, president and general manager of the Tractomotive Corp., Deerfield, Ill., died at Billings Memorial Hospital, Chicago, the 8th of April.

Mr. Dobeus and Paul B. Cochran founded the company at Findlay, O., in Sept., 1945. He became sole owner shortly after the firm moved into its new plant at Deerfield in Nov., 1948.

Prior to forming Tractomotive, Mr. Dobeus was chief engineer at the Springfield, Ill., works of the tractor division, Allis-Chalmers

Manufacturing Co., from 1942 to Oct. 31, 1945. He started with Allis-Chalmers as a student engineer in the tractor division at Milwaukee in 1928.

Mr. Dobeus was born at Montevideo, Minn., and graduated in mechanical engineering from Montana State College in 1926. He recently served as a member of the National Production Authority Tractor and Allied Equipment Industrial Advisory Committee.

His wife, one son, a brother, and five sisters survive.

Riggers PLAY IT SAFE on "high wire" jobs!

...that's why they demand GENUINE

CROSBY CLIPS

Drop-forged, hot-dip galvanized wire rope fasteners

SIZES FOR ⅛" TO 3" WIRE ROPE

DISTRIBUTORS EVERYWHERE

AMERICAN HOIST & DERRICK CO.
ST. PAUL 1, MINNESOTA

• An advantageous communications lookout point was created by stationing a man with "handie-talkie" portable on the Union Pacific bridge across the Missouri River at Omaha. From here he could maintain a continuing daylight watch on dikes and flood action, and report to central control points.

Corps of Engineers to specific areas along the river ramparts. At the north end of the Omaha system, Peter Kiewit Sons Co. of Omaha, worked on the 4½ mile section from the levee terminus to the south end of the airport.

South of Kiewit's sector, the Miller Excavating Co. of Omaha buttressed the vital 3-mile section between the airport and the Illinois Central Railroad bridge. From the bridge to the midtown concrete floodwall, Army troops worked on the levee.

The floodwall itself, which was crowned by wooden flashworks, was assigned to Parsons & Metcalfe Construction Co. of Omaha and Abel Construction Co. of Lincoln, Neb. The remaining section of about three miles was handled by Condon-Cunningham Co. of Omaha.

On the Council Bluffs side, most of the levee mileage was assigned to Army troops except for the two mile sector south of the Ak-Sar-Ben Bridge where Rorick Construction Co. and Orsman Construction Co., both of Council Bluffs, combined their forces.

Several serious weak spots developed and huge secondary or "shoestring" levees were constructed at these points behind the sagging main levees. Worst of these danger points was the north levee protecting Council Bluffs. This section of the defenses had to bear the tremendous thrust of several miles of water which was being turned at this point and forced through the narrow strait jacket of the Omaha-Council Bluffs levee system.

Ace Construction Co. of Omaha threw a huge 8,000-foot secondary levee across the Illinois Central tracks

Continued on page 44

NEW TILTING TRAILER
for 5th wheel tractors!

14, 18 and 22 ton Capacities

Easily loaded and unloaded in 5 min. by 1 man!

Here at last is a *practical* heavy-duty tilting trailer, embodying the famed La Crosse *"double-strength"* gooseneck, for hauling big trenchers, shovels and other equipment behind standard 5th wheel tractors. Eliminates need for skids and blocking . . . saves hours of labor on every move. Operator simply tilts trailer platform to ramp position . . . drives or winches equipment into place . . . and he's ready to go in 5 minutes, with *platform automatically leveled and locked for traveling.*

Available in 14, 18 and 22 ton capacities, this new GTTA Tilt Top gives you all the advantages of job-proved La Crosse construction, including: "uni-built" subframe, hydraulic cushioned platform control, "walking beam" axle supports, big constant rise S cam brakes, and extra wide base rims for longer tire life. Write today for complete details, including facts on La Crosse *draw-bar-type* tilt trailers, and custom-built La Crosse low beds up to 67 tons capacity.

LC-24

Check Today!

LA CROSSE TRAILER CORPORATION, La Crosse, Wis.

Rush complete information on La Crosse trailers:

☐ Gooseneck Tilt ☐ Draw-bar Tilt ☐ Standard Low Bed

☐ Send name of nearest La Crosse Distributor.

☐ We may buy a ..... ton trailer about ..... (date)

Name..... Title.....

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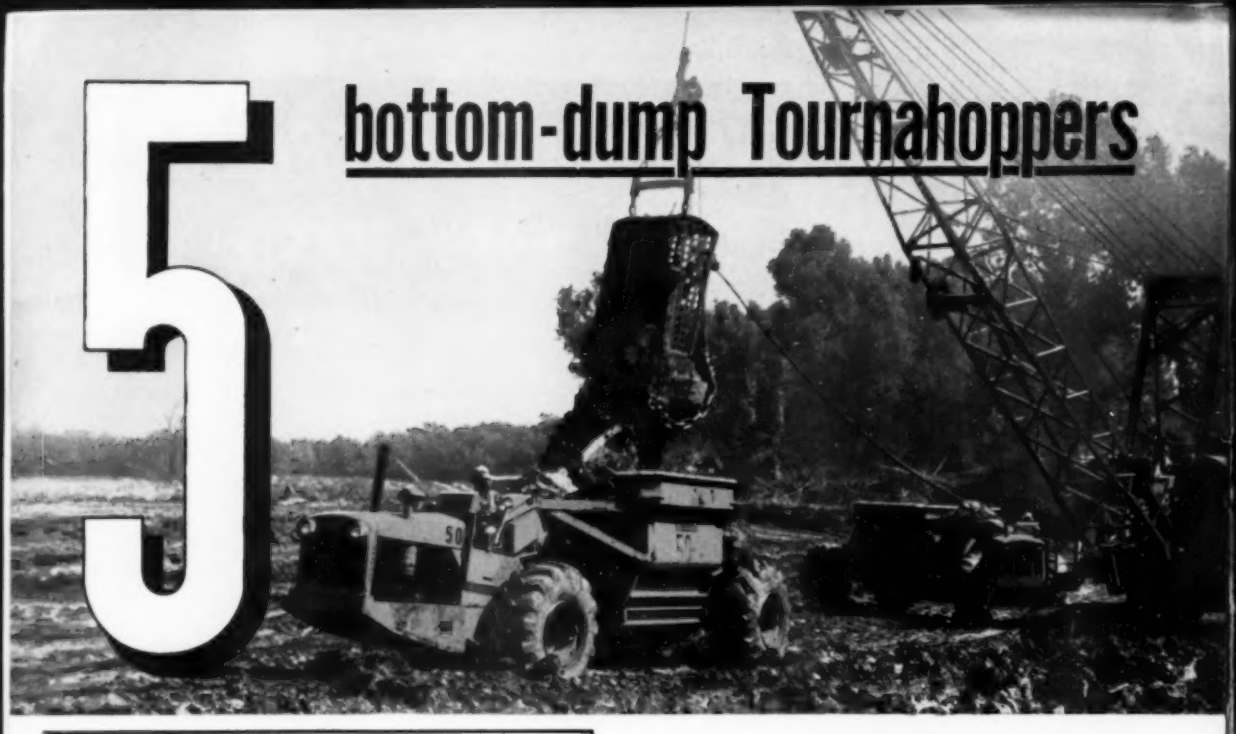
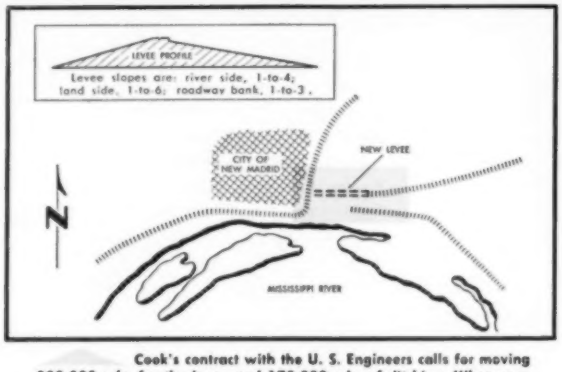
LA CROSSE

America's Favorite LOW BED TRAILER

5 bottom-dump Tournahoppers



on 3000′ cycles



Cook's contract with the U. S. Engineers calls for moving 800,000 yds. for the levee and 170,000 yds. of ditching. When completed, the enbankment will close a ¾-mile gap between the main levees east and west of New Madrid, Mo. The new section will measure 285′ wide at its base, 30′ high at the center, and will extend exactly 4167′. A 10′ crown, plus a 15′ supplementary roadway on top, will also be constructed.

W. G. Cook Construction Company, Jackson, Mississippi, with contract for a 970,000-yd. closure levee at New Madrid, Missouri, is speeding production with 5 15-yd. electric-control C Tournahoppers.

Loaded in 70 to 90 seconds by a 3½-yd. dragline, these mobile Bottom-Dumps are averaging 10 pay yards of bulky, high-void gumbo per load. On a typical 3000′ cycle, each Tournahopper delivers 75 pay yards per hour. Though haul includes a very slippery 2% adverse grade coming out of pit and 3% adverse onto fill, rigs complete a round trip in 6.7 minutes . . . make 7.5 trips per 50-minute hour. "Clamshell-type" gates wipe clean, eliminate haulback of gummed-in material.

Tournahopper's big 9′ x 11′ bowl provides easy loading target for operator of 3½-yd. dragline. About 3′ of sandy silt has been stripped from the top of this 2300′-long pit and placed on land side of levee. Remaining material, all gumbo, is now being loaded and used to build up a water-tight wall on the river side.

High-speed, Rubber-tired
Hauling • Excavating
Lifting Equipment

LETOURNEAU LET EQUIPMENT

deliver 375 pay yards per hour

on Missouri levee

Round-trip speed over muddy haul roads averages 9 m.p.h. Top for Tournahoppers is 35 m.p.h. . . . a speed the 5 rigs frequently hit in driving 60 miles to this job from another Mississippi River levee project at Cape Girardeau, Missouri.

Whenever *you* have levee dirt to move, it will pay you to get all the facts on LeTourneau's fast Tournahoppers. Now available in 18 and 27-yd. models, these high-traction units are readily interchangeable with similar-size Scrapers for normal dirt jobs and with Rear-Dumps for rock work. Talk it over with your LeTourneau Distributor. Ask him for reprints of other case histories that may suggest profit opportunities for you!

Rig hauls typical 10-yd. load of bulky gumbo. With pit flooded for months, and with a heavy 3½" rainfall a week before pictures were taken, going was unusually tough, even for river work. Low-pressure tires, plus power-proportioning differential (which automatically transfers power from slipping wheel to wheel on firmest footing), gave Tournahopper remarkable traction in this poor footing, however . . . let the 5 rigs work 20 hours a day, 6 and 7 days a week.

After dumping, Tournahopper swings around and hurries back to cut. With 90° power steer, rig turns in 15'8" radius, works fast in restricted areas, travels safely through traffic. More braking surface per ton than any other hauler (3763 sq. in. total on the 4 wheels) gives operator perfect control in traffic and on levee banks.

Tournahopper—Trademark Reg. U. S. Pat. Off. H-65-A

R. G. LeTOURNEAU, INC.

Peoria, Illinois

• Emergency levee built across Union Pacific yards in Omaha was constructed by U. P. Railroad employees and hired labor using rented equipment. An International TD-9 crawler pulls tamping rollers on fill as fast as trucks haul it in. This levee was built to protect shops and a portion of yard installations should weakened main levee be breached by the flood. Below: This giant sandbagging operation is supervised by E. A. Wickham Construction Co. of Council Bluffs. Wickham employed about 450 men 'round the clock in producing sandbags for crumbling north levee seen in background. In foreground, an International TD-9 and loader picks up another load of sandbags for waiting truck.

News

Continued from page 41

and the main line of the Chicago Northwestern. This secondary levee was roughly parallel to the main levee and about two-thirds of a mile back of it.

With the aid of another Omaha firm, Parks Construction Co., Ace literally moved a bluff to the levee with amazing speed. More than 1,000 cubic yards of earth were moved over an average one-mile haul every hour around the clock until the levee was complete. In four days' time, approximately 100,000 yards of fill were placed at this vital spot.

When serious sandboils developed immediately behind the main levee, Ace and Parks built another secondary levee a couple of hundred feet behind the main wall to bolster that point of the system.

Ace used about 100 pieces of equipment here, including approximately 75 haul trucks, some of which belonged to the Army units involved in the emergency.

At the east end of the Ak-Sar-Ben bridge, Council Bluffs had to deal with another serious sandboil and a large secondary levee containing approximately 30,000 cubic yards of earth was raised here in less than 24 hours with 250 trucks hauling the fill more than two miles from the borrow pits.

Costs of the successful defense of Omaha and Council Bluffs were estimated at well over $2 million by the time the crest of 30.24 ft. had passed on Friday, the 18th of April.

Blast and Quake Effects Subject of Conferences

The effects of atomic bombs and earthquakes on structures will be discussed in conferences to be held this June at the Massachusetts Institute of Technology and at the University of California, Los Angeles campus. The M.I.T. conference, "Building in the Atomic Age," will be held on the 16th and 17th of June and the California conference, "Symposium on Earthquakes and Blast Effects on Structures," from the 26th to the 28th of June.

The two conferences, which have been planned independently, are designed to bring the most recent research results and professional developments in the field to architects, builders, building officials, city planners, plant managers, practicing engineers, and public works officials.

The program at M.I.T. will present the latest available knowledge on the effects of atomic bombs and on the design of structures for resistance to large blasts.

Double Wing Span Bridge Opens in Virginia

Formal opening ceremonies were held on the 7th of May for the George P. Coleman Bridge at Yorktown, Va. This is the largest double wing span structure in the world and the largest single project in the history of the Virginia Department of Highways. The new toll bridge spans the York River.

Work started on Dec. 6, 1949. With its approaches, the Coleman Bridge will cost in excess of $9 million.

The bridge measures 3,750 feet in length and its swing spans afford a channel 450 feet wide with unlimited overhead clearance, thus accommodating the largest ships afloat. When

the draw is closed a clearance of 60 feet is provided. At its highest point, the 26 ft. roadway is 120 feet from the river.

The George P. Coleman bridge was named after a Williamsburg, Va. native who pioneered all-weather, permanent highways nationally.

The earth fill on the Gloucester point approach totaled 75,000 yds. The cantilever construction is supported over the water on six giant caissons buried deep in the river bottom. The largest pair of these support the swing spans and are equivalent in size to that of ten-story buildings.

The bridge was designed by Parsons, Brinckerhoff, Hall, and MacDonald of New York. The contractors for the substructure are the Massman Construction Co. and the Kansas City Bridge Co., both of Kansas City, Mo. The superstructure was contracted by the American Bridge Division of U.S. Steel Corporation Subsidiaries, Roanoke, Va. and the approach roads by W. H. Scott, of Franklin, Va.

Bonner New Moles Head

David Bonner, vice president of Frederick Snare Corp., New York construction firm, was recently elected president of The Moles, association of tunneling and heavy construction men. The election took place at the annual meeting.

Other officers elected included Richard E. Dougherty, consulting engineer, first vice president; George F. Ferris, Raymond Concrete Pile Co., second vice president; Charles E. Simmons, Bethlehem Steel Co., sergeant-at-arms; Harry T. Immerman, Spencer, White & Prentis, secretary; and Howard P. Maxton, Raymond Concrete Pile Co., treasurer.

New trustees are Peter F. Connolly, The Peter F. Connolly Co.; Andrew Fischer, Jr., Cauldwell-Wingate Co.; Eugene G. Rau, J. Rich Steers Inc.; James G. Tripp, Tripp Construction Co.; Edward P. Palmer, Senior & Palmer, Inc.

Bonner has been with Frederick Snare since 1942, having charge of projects such as piers for the navy at Charleston, S. C., foundations for the Chesapeake Bay Bridge, and the new Atlantic Beach Bridge.

N. J. Turnpike Safety Record Betters 'Public' Roads

In spite of inclement weather conditions early in March, including snow and ice, the safety record on the New Jersey Turnpike for that month was much better than that experienced on public highway systems.

During March there were a total of 51 accidents recorded on the turnpike which, using the standard formula of the federal and state governments in reporting accidents, averaged 85 per 100 million miles of vehicular travel. The March figures for New Jersey are not available but the latest figures covering the first ten months of 1951 showed, by comparison, 381 accidents per 100 million vehicle miles of travel on the state's public highways.

For the first three months of 1952, accidents on the turnpike totaled 223 which, on the standard basis, were equal to 172 per 100 million miles of travel. Thus, the turnpike accidents, were less than half those on New Jersey's highways, whose record is among the lowest in the country.

Of the turnpike's 51 accidents in March, 21 involved damage to property, 29 injury to persons, and one was a fatal accident. Twenty-nine of the accidents occurred in darkness and 22 in daylight.

On the whole, the accidents on the turnpike in the first quarter were the result of human-failure, includ-

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POSITIVE —AUTOMATIC
YOU DON'T HAVE TO
KICK THE BUCKET
TO CLEAR IT—IF IT'S A
PeKay
M-T-MATIC
Irresistible leverage sweeps out SAND —COAL—GRAVEL, or any granular materials, on every trip—even if frozen or close-packed. The secret is the separately mounted stripper-plate—which must push up and out when it starts over pulley radius. THOUSANDS NOW IN USE —handling more material at same or faster belt speeds. Saves belts—cuts maintenance—easy to install on any elevator conveyor—all sizes.
QUICK DELIVERY!
standard buckets also available..
★ SEND FOR PRICES TODAY (give present bucket size)
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100 N. LA SALLE STREET
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ing such causes as following cars ahead too closely; inattention to driving; excessive speeds; improper turns; and improper passing. Nineteen accidents were caused by mechanical failures.

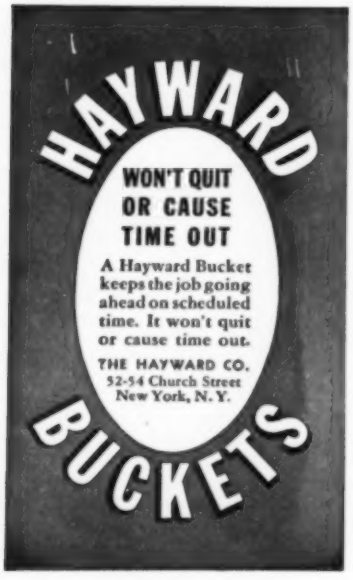
No accidents, said the authority, were attributable to the design and consruction of the turnpike. The lower rate of accidents is largely the result of safety features incorporated in the turnpike, such as the elimination of crossroads and the absence of lefthand turns.

Hidden Accident Costs Form Greatest Burden

Have you ever stopped to think how much an accident really costs? And who isn't interested in costs these days? Better still, have you ever estimated the total cost of one of your accidents? Experts tell us that it will run about five times the direct cost of medical aid and compensation.

A chart by the Industrial Indemnity Co. of San Francisco likens the cost of an accident to an iceberg. The direct costs appear above the water line; the indirect costs, below it. Under the chart are these words: Hidden costs of accidents are not visible on the surface but are there just the same.

The chart lists the following hidden costs: (1) time lost from work by injured, (2) loss in earning power, (3) economic loss to injured's family, (4) lost time by fellow workmen, (5) loss of efficiency due to break-up of crew, (6) lost time by supervision, (7) cost of breaking in new man, (8) damage to tools and equipment, (9) time damaged equipment is out of service, (10) spoiled work, (11) loss of production for remainder of day, (12) spoilage—fire, water, chemical, explosives, etc., (13) overhead cost (work was disrupted), and (14) miscellaneous—there are at least 100 other items of cost that appear one or more times with every accident.



E. F. Higginbotham

Ernest F. Higginbotham, president of Road Builders Equipment Co., Memphis, Tenn., died in Memphis on the 31st of March after an illness of two weeks. He would have been 52 on the 29th of April.

Mr. Higginbotham was born in Indianapolis. After serving overseas during World War I, he joined the J. D. Adams Co. of Indianapolis, as a clerk. He later became a salesman, serving in that capacity till 1934, when he became sales promotion manager over the 48 states. He came to Memphis in 1940 to join Road Builders Equipment Co.

Mr. Higginbotham was vice president of Memphis Equipment Co. and president of Tractors & Equipment Co., Paris, Tenn.

During the 12 years he spent in Memphis, Mr. Higginbotham distinguished himself as one of the city's most tireless workers in civic and benevolent activities. He has served as chairman of the business division of both the Community Chest and the Red Cross campaigns in Memphis and Shelby County. At the time of his death he was president of Memphis Boys' Town, president of International Industrial Council, an organization composed of International industrial distributors of the United States and Canada, chairman of the scrap mobilization campaign in the city and county, and a supporting member of the YMCA.

He leaves his wife, Mrs. Lucille Higginbotham, two sisters, a daughter, and four grandchildren.

Establish Welding Library at Ohio State University

To assemble in one place all of the important literature on welding—this is the objective of the A. F. Davis Welding Library at Ohio State University in Columbus.

Established in 1942, the library already includes one of the most extensive collections on welding in the world. On its shelves are more than 4,000 books, including volumes on design for welding, welding techniques, properties of weld metals, standard welding handbook, and periodicals. In addition the fields of metallurgy, mechanics, machine and structural design, electrical engineering, mineralogy, and industrial engineering are represented.

The original award studies of the James F. Lincoln Arc Welding Foundation are assembled here in bound volumes, and an up-to-date collection of industrial catalogs is maintained. Holdings of the library have been listed and published for the convenience of off campus users.

The library is named for its donor, A. F. Davis, vice president and secretary of the Lincoln Electric Co., Cleveland, O. Davis has spent over 30 years in the welding industry. During this time, he has seen welding processes develop from little more than laboratory experiments into a large industry.

Ohio State University is the only university in the United States having a department of welding engineering.

Strip Pit Fishing Contest in Missouri Open to All

The prizes and rules in the 1952 Missouri strip pit fishing contest sponsored by the Missouri Coal Operators Association have just been announced. The grand prize in this third annual contest is a 5 hp Mercury outboard motor. Among the other 112 prizes are valuable rods and reels for the winners

• One of the latest vehicles developed by Army Ordnance, the XM34 *Eager Beaver* truck is shown as it travels over the "frame twister" at Aberdeen Proving Ground, Md. The new vehicle has eight speeds forward and can travel at nearly 60 mph.
U. S. Army Photograph

of the largest fish taken in Missouri strip pit ponds and lakes.

The contest is open to all fishermen and a duplicate set of prizes is offered for coal company employees and the general public. As in the past, first and second prizes are offered in three fish classifications: Black bass, crappie, and pan fish (bluegill or perch). First prize in each classification is the choice of a $15 rod or reel, and second prize is choice of a $10 rod or reel.

Every fisherman who enters the 1952 contest is eligible to win the grand prize, a 5 hp Mercury outboard motor. At the close of the contest, the name of the winner of the motor will be drawn from all of the entries received.

All fish entered in the contest must be caught in waters formed as a result of strip coal operations within the state of Missouri.

The official rules and entry blanks may be had by writing Mr. Tom Cheasley, secretary, Missouri Coal Operators Association, 114 W. 11th St., Kansas City, Mo.

Houston's Freeway System to Get Addition

Awarding of a $1 million contract marked the start of work on another Houston superhighway project which eventually will be like the Gulf Freeway soon to be completed between Houston and Galveston.

The proposed six-lane freeway will stretch from the Humble Highway at Halls Bayou in north Harris county into downtown Houston. It roughly follows US 59.

Work just initiated will be on service roads—two concrete 30-foot roadways, expected to be completed within eight months. The section now under construction will be one-and-a-half miles long, a little more than one-eighth of the proposed freeway system.

Gulf Bitulithic Co. of Houston was awarded the contract for sewers and paving on these service roads, according to W. J. Van London. Van London is urban engineer in Houston for the Texas State Highway Department.

The proposed freeway will tie-in with Houston's overall expressway system including the Gulf Freeway, still under construction; extension of the Gulf Freeway north to tie-in with highway 75 and construction of an east-west highway 90.

Award Power Plant Contract for Folsom Dam, Calif.

A contract for construction of a power plant at Folsom Dam on the American River, 20 miles east of Sacramento, has been awarded to the Guy F. Atkinson Co. of San Francisco, on a low bid of $5,772,959.50 (*Excavating Engineer*—Mar. 1952).

The 340 foot high, 10,230 foot long Folsom Dam is a concrete and earth-fill structure which will store run off from the famous Donner Pass area in its million acre-foot storage reservoir. It is being constructed by the Army Corps of Engineers for later

Continued on page 50

Dewatering 1500' of 8' x 14' deep sewer trench at a river crossing, this 4" Jaeger pump handled 40,000 gph at average speed of only 1200 rpm (10% to 15% lower speed than other pumps), and reprimed quickly, as needed, at 1400 rpm (compared with 1800 to 2000 rpm required to prime ordinary pumps). This is typical performance. Jaeger's larger shells and impellers, double priming action and use of largest engines applicable mean high efficiency, fuel economy, long life — in 1½" to 10" pumps.

See your Jaeger distributor or send for Catalog P-10

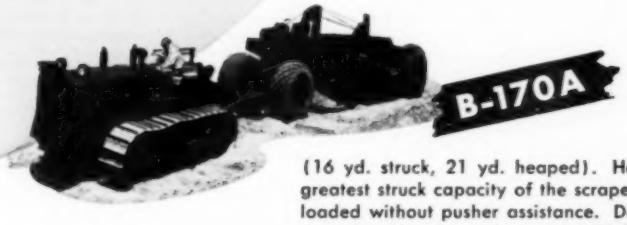
THE JAEGER MACHINE COMPANY 553 Dublin Avenue, Columbus 16, Ohio

COMPRESSORS • MIXERS • HOISTS • TOWERS • PAVING MACHINERY

YOUR CHOICE OF 3 GREAT B-TYPE SCRAPERS

(22 yd. struck, 27½ yd. heaped). Largest scraper in current production available for use with crawler tractors. Developed along with the International TD-24 tractor to fully apply its unusual working capacity.

(10 yd. struck, 14 yd. heaped). Engineered especially to work with the International TD-18A Tractor and make a matched dirt-moving team of championship caliber.



(16 yd. struck, 21 yd. heaped). Has greatest struck capacity of the scrapers loaded without pusher assistance. Designed as the companion to the TD-24 tractor — takes full advantage of its superior speed and power.

Each of these three Bucyrus-Erie B-Type Scraper models loads with the same "fountain" action that breaks up chunks and boils material up through to fill the bowl completely.

Each hauls easily on big tires, and has the stability that comes with low bowl height, wide spaced rear wheels and proper weight distribution.

Each dumps fast and clean with the same positive *rolling* action — a type of ejection that requires less horsepower and thus permits dumping in higher tractor gear.

Each has the design refinements and strong construction throughout that mean extra ease of handling and servicing, extra yardage hauled, extra long life.

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

BIG RED TEAM

CONTINUES TO WIN ON PERFORMANCE

Time after time the Big Red Team — International TD-24 Tractor and Bucyrus-Erie B-250 or B-170A Scraper — comes out on top in actual field tests. It hauls more yards, loads and dumps faster, has shorter overall cycle time than comparable units. But why not find out for yourself? Ask your International Industrial Tractor Distributor for a demonstration.

BT52C

Continued from page 47

operation by the Bureau of Reclamation as an integrated flood control feature of the comprehensive Central Valley water conservation project. The 162,000-kilowatt power plant is being installed and operated by the Bureau of Reclamation, which will market the hydroelectric energy output.

Under the contract, work must be begun within 30 days and completed in 790 days.

New Reservoirs to Insure Adequate Water for NYC

A few years ago New York City, like a mariner adrift in the sea, came close to living the paradox of having no water to drink, though the city is nearly surrounded by it.

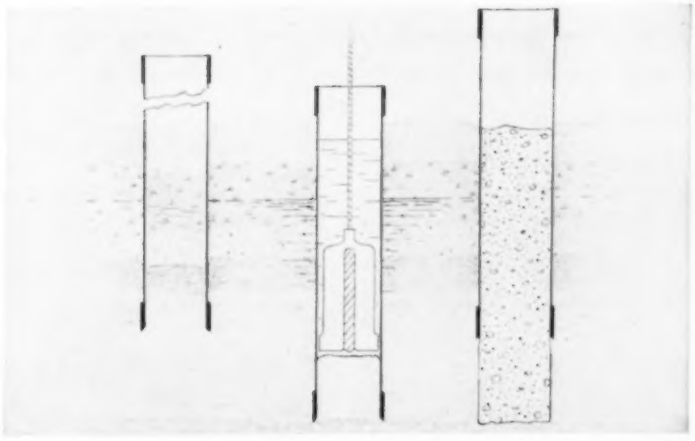
Far from the city the four huge watersheds which furnish New York with its 1.2 million gallons of water each day were at a critical state of depletion. Serious difficulty in the city was avoided through a water rationing program which curtailed bathing, shaving, and lawn sprinkling and restricted commercial water users. Water from the Hudson River was treated and used while the reservoirs were at their low ebb.

The water shortage in New York was not due to any shortsighted policy of the city fathers. They had anticipated New York's growing water needs and had several new reservoir projects in mind and underway when the war intervened and construction stopped. By the time the war ended and material was again available for construction, the water famine had struck.

There is little danger that the water famine of 1949 will strike the nation's largest city again. By 1954, three giant reservoirs in upstate New York will supply upwards of 540 million gallons of water a day for consumers in New York City alone.

One of the three, and the largest, is the $17 million Pepacton reservoir at Downsville, N. Y., forty miles north of New York. The Pepacton reservoir will be formed by the Downsville dam due for completion in 1955. Here, round-the-clock, four construction companies are building the huge, 18-mile-long reservoir that is 180 feet deep. When filled, Pepacton will hold more than 150 billion gallons of water which can be pumped to New York through concrete tunnels.

Kohler electric plants power floodlighting facilities which insure uninterrupted construction on this project.



• The steps in constructing concrete caisson-piles at Westinghouse plant construction in East Pittsburgh are shown here. First heavy steel casing is sunk to rock. Boulders are broken by churn drill and materials removed until rock is exposed. When cleaned, casing is filled with concrete and withdrawn.

• In Downsville, N. Y., 40 miles from the great metropolis, this huge reservoir, the Pepacton, is being built to help maintain New York City's water supply. From this 150 billion gallon storage facility, water will travel through concrete tunnels to New York City's pumping stations.

Complete Pile Foundations at Westinghouse Plant

Western Foundation Corp. reports completion of the pile foundations for the warehouse and the first section of the D annex building of the Westinghouse Electric Co. plant in East Pittsburgh.

In addition to the steel shortage, unusually difficult subsurface conditions created a problem in constructing the pile foundations. The clay which extends from below the fill to just above the rock, is interspersed with layers of soft shale. A water-bearing sand-gravel layer directly overlying the rock, made standard types of open caissons impossible. Western, in cooperation with Stone & Webster engineers solved the problem and saved a large amount of steel by using Western's all concrete caisson-piles.

The caisson-piles were designed for capacities up to 450 tons each. Western installed 191 concrete caisson-piles to complete the first portion of this job. Upon completion of the superstructure,

Turning bog into runway

on Whidbey Island

To speed the contract for a new runway at Whidbey Island Naval Air Station, Washington, Peter Kiewit Sons' Co. have used "Caterpillar" DW20 Tractors and No. 20 Scrapers on long, fast hauls.

The first problem was to remove 15 to 25 feet of bog that occupied the area, before making the fill. The contract called for moving more than 750,000 cubic yards of earth. "Cat" equipment on the job included 3 DW20 Tractors and No. 20 Scrapers, 15 D8 Tractors, a D6 Tractor, 5 No. 12 Motor Graders and 3 No. 80 Scrapers.

Material for the fill was rocky, sandy, very dry and hard to load, so that D8 push-loading was required. With pay loads of 17 cubic yards, the DW20s made the round trip of over 10,000 feet at speeds that gave each unit an average of 125 pay yards per hour. Contributing to this efficient operation was the haul road, carefully maintained and kept in first-class condition at all times.

Good equipment is valuable property in these times. It's worth taking care of. A few minutes a day spent on proper maintenance will pay off in many added hours of profitable work life. Consult your "Caterpillar" Dealer. He's there to help you with all the service facilities at his disposal.

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DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

● A new 2½ yd. Link Belt shovel, powered by a 275 hp Model NHS-600 Cummins Diesel torque converter unit, loads a 36TD Euclid dump truck with rock at the site of Grand Coulee Dam in the state of Washington. Both units are owned and operated by Pacific Bridge Co., San Francisco, which has contract for "rip-rap" work on the face of Grand Coulee Dam. Pacific Bridge operates seven 18-ton 36TD Euclids on this project.

Western will install the foundations for the second section of the annex building. Since these piles rest on the shale bedrock any possibility of future settlement is eliminated.

Cut Conveyor Belt Wear by Proper Loading

Increased service life and decreased maintenance cost are dividends that result from investing proper care in belting used on conveyor installations. The Thermoid Co. of Trenton, manufacturer of conveyor belting, has completed a study of wear factors.

The study singled out loading conditions as a prime factor in belting deterioration. Both existing and proposed installations should be regarded with the intention of creating "ideal" loading conditions.

One of the basic requirements for low-rate belt wear is to see that material loads the belt while moving in the same direction and at the same speed as the belt. Where this requirement has not been satisfied, installations have shown excessive belt wear due to abrasion created at the loading point.

When lumpy material is being carried, an attempt should be made to have such material cushioned by a prelaid layer of fines. A screen or "grizzly" at the bottom of the loading chute or, in some instances, an oval or "fishtail" notch cut in the lip of the chute will satisfactorily deposit a layer of fines over the belting, thus providing protection against bruising.

At the same time, the velocity of loading-material flow should be controlled by pitching the loading chute properly. If this is not feasible, a baffle of iron or wooden bars should be constructed in the chute so as to reduce the speed of material flow onto the belt. However, the minimum rate of this flow should still maintain delivery of the desired volume.

In like manner, falling distance be-

George B. Massey

On Mar. 9, 1952 George B. Massey died at his home in Winnetka, Ill. Recently he had suffered a heart attack.

Mr. Massey had been associated with the Bucyrus Co.; Massey Machinery Co. of Watertown, N. Y.; a partner in the Randolph-Perkins Co.; Consulting Engineers, Chicago; George B. Massey & LeRoy K. Sherman, Consulting Engineers; Army Ordnance depot at Sidney, Neb. (chief of civilian engineers); navy munitions depot at McAlester, Okla.; Dolese and Shepard; and Andrew Rebori, architect.

In 1895 Mr. Massey graduated from the Yale-Sheffield Scientific school. He served in the navy during the Spanish-American and World War I. He was the husband of the late Dorothea Stewart Johnson of Chicago.

At the time of his death, Mr. Massey had signed up with Greely and Hansen for a Philadelphia-New Jersey-New York City area water survey.

Recently Mr. Massey designed a sea wall for Winnetka and was waiting to test the effect of Lake Michigan before broadcasting his method.

He contributed much to local community progress by procuring donations for a camp, gym, bowling alley, and rebuilding fund for Winnetka's community house. Mr. Massey headed the Community House Board, Park Board, Congregational Church Finance Committee, and the Winnetka American Legion Post.

The Western Society of Engineers, American Society of Civil Engineers, Engineers Club of Chicago, and University Club of Chicago claimed him as a member.

Mr. Massey is survived by three children.

tween chute and belting should be minimized to prevent excessive speed of material-flow which, in the case of lumpy material, might be great enough to cause belt damage.

In no instance should a material strike the belt directly above a solid pulley because the resulting hammer-anvil action will quickly render the belting unusable. The chute should be located so that material will strike the belt between idlers. However, in cases where heavy material is being loaded, it may be necessary to load directly over rubber-covered or pneumatic idlers.

In some cases, impact of the load between idlers will set up belt vibration. Resultant chattering may depress the belt sufficiently to allow material to escape under the skirt-boards. This may be prevented by locating the chute so that loading material will strike the belt far enough ahead of the tail pulley to allow insertion of at least one belt-steadying carrier pulley. Also, carrier pulleys should be more closely spaced around the loading zone because of the impact loading of belt at that point.

Construction of loading chute skirt-boards and flexible skirts should be carefully considered. Skirt-boards should be long enough to settle the material before it leaves the loading area. Flexible skirts are preferably improvised from rubber-covered edges of belting remnant. These remnants should be placed so that the rubber-covered edge contacts the belting. Should this be reversed, and the exposed-fabric edge of belt remnant placed against the moving belt, grit will collect in the fabric. Resultant abrasive action of the flexible skirt will, in time, wear a track through the belt cover.

Vertical spacing between chute skirt-boards and belt increases toward the open end of the chute. Thus the width of flexible skirts, as cut from a belt remnant, should increase toward one end. This construction allows uniform contact between the flexible skirt and belt over the entire length of the chute skirt, and minimizes spillage around the loading point. Wedged-in lumps can be freed by belt motion.

• Gar Wood Industries, Inc., Wayne, Mich., has added this tankdozer for the army to its assembly line.

WELLMAN *Williams Type*

FAST BUCKET OPENING SPEEDS OPERATIONS

• Double-hinge construction on Wellman's multiple-rope bucket permits faster opening than a single hinge. This speeds up operations, also gives a bigger spread in the open bucket for the same headroom.

Wellman's welded-design buckets offer you better performance and longer service. In all types and sizes you'll do better with Wellman!

Want Facts?

Write for free descriptive bulletins.

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STONE AND WOOD GRABS

THE WELLMAN ENGINEERING COMPANY
7000 Central Avenue
Cleveland 4, Ohio

NOT in the *Contract*

Jimmy: "I wonder if George Washington was as honest as they say?"

Mother: "I tell you, George Washington was the most honest man ever born."

Jimmy: "Then, Mother, why do they close the banks on his birthday?"

Jack and Jill went up the hill,
Upon a moonlight ride,
When Jack came back
His eye was black.
His pal, you see, had lied.

Comment on a glamour gal in a television show: "What an evening gown! You couldn't tell whether she was inside, trying to get out, or outside trying to get in."

Lady—You look strong enough to work and earn your living.

Tramp—Yes, madam, I know it, and you are beautiful enough to go on the stage, but we both prefer a quiet, happy home life.

The great big beautiful car drew up to the curb where the cute little office girl was waiting for the bus. A man stuck his head out and said, "Hello, I'm driving south."

"How wonderful," said the young lady. "Bring me back an orange."

A lawyer journeyed to a neighboring state to try an important case, promising to wire his partner the moment a decision was announced. At last the wire arrived. "Justice has triumphed!"

The partner indignantly wired back: "Appeal at once!"

"You've been promoted?"

"Yep. Used to be a drop engineer, now I'm a sandwich engineer."

"What do you mean?"

"The boss used to come around and say, drop whatever you are doing and do this. Now he says, sandwich this in between whatever you're doing."

"Here are the new changes in specifications — wish I had time to remain for the discussion period. . ."

In front of a Columbia, S. C., delicatessen a well-known artist noticed a mangy little kitten lapping up milk from a saucer. The saucer, he realized with a start, was a rare and precious piece of pottery.

He sauntered into the store and offered two dollars for the cat. It's not for sale said the proprietor. "Look," said the collector, "that cat is dirty and undesirable, but I'm eccentric. I like cats that way. I'll raise my offer to five dollars."

"It's a deal," said the proprietor, and pocketed the five-spot.

"For that sum I'm sure you won't mind throwing in the saucer," said the connoisseur. "The kitten seems so happy drinking from it."

"Nothing doing," said the proprietor firmly. "That's my lucky saucer. From that saucer, so far this week, I've sold thirty-four cats."

Sign in machine shop: "Girls, if your sweater is too large for you, look out for the machines; if you are too large for the sweater, look out for the machinists."

Teacher: "Where is the capital of the United States?"

Young Sage: "In loans, all over the world."

Soprano: "Your accompaniment certainly doesn't suit my voice."

Pianist: "Madam, I have tried all of the white keys and all of the black keys, but you sing in the cracks!"

Two bachelors got off on the subject of cooking. "I got one of those cookery books once, but I never used it. Too much fancy work in it," one said.

"How come?" asked the other.

"Why, every one of them recipes began: 'Take a clean dish,' and that stopped me."

Mixed emotions: Man seeing his mother-in-law backing over a cliff in his new Cadillac.

Her head is just as vacant as the breakfast room in a hotel at Niagara Falls.

Foreman: "You are asking big pay for a man with no experience."

Applicant: "Well, running a shovel is much harder when you don't know anything about it."

More speed on new highway—with TIMKEN® bearings in scraper and tractors

THE three Caterpillar units below are working on the relocation of U.S. Highway 50 near Guysville, Ohio. In all three units—DW21 tractor (pulling), 21 scraper, and D8 tractor (pushing)—vital moving parts are mounted on Timken® tapered roller bearings.

With Timken bearings in this equipment, the contractor has extra insurance that the job will keep moving along on time. Timken bearings make closures more effective by keeping shafts concentric with housings; dirt and dust stay out, lubricant stays in. Timken bearings take heavy shock loads with capacity to spare. Due to smooth surface finish and case-hardened bearing surfaces, wear within Timken bearings is negligible. Since Timken bearings take both radial and thrust loads, they hold related parts in proper alignment, preventing wear.

As a result, time out for maintenance and repair of equipment is minimized. The machines stay on the job.

The construction equipment you build or buy should have the advantages that Timken bearings make possible. Be sure its bearings carry the trade-mark "Timken". The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.

CATERPILLAR TRACTOR CO. mounts the DW21 tractor, 21 scraper and D8 tractor on Timken bearings for smooth, dependable performance.

FINISHED TO CLOSER TOLERANCES

Finishing to incredible smoothness accounts for much of the precise, smooth rolling performance of Timken bearings. This honing operation is typical of the amazingly accurate manufacturing methods at the Timken Company.

The Timken Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

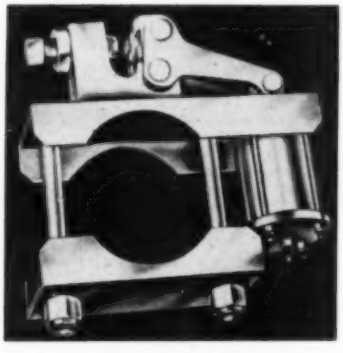
TIMKEN

TRADE-MARK REG. U.S. PAT. OFF.

TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ▯ AND THRUST ▯ LOADS OR ANY COMBINATION

Equipment You Ought to Know About



Mounting Clamp

Manufacturer: Viber Co., 726 S. Flower, Burbank, Calif.

Claims: The air operated mounting clamp is another new product in a continuous series of developments in vibration. This clamp is designed to speed up attachment of external vibrators to load.

The air operated mounting clamp is advantageous when only short periods of vibration are required. No lengthy installation is necessary as air pressure applied first to the clamp causes jaws to grip securely on to suitable steel member such as exposed angle. This requires only a few seconds and air can be applied to the vibrator immediately for whatever period vibration is necessary.

This clamp has been subjected to severe laboratory and field tests to determine its effectiveness. It has multiple uses: An example is tunnel lining where the vibrator can be moved about at will. It is beneficial in unloading trucks where heretofore lengthy time required in attachment of the vibrator to the load made vibration impracticable.

The air clamp has made vibration possible in many different type industries where it could not formerly be used such as in sand glass, cement, aggregate, gypsum, perlite, coal, and many others.

Lubricant

Manufacturer: Southwestern Petroleum Co., Fort Worth, Tex.

Claims: Excellent performance in both extremes of heat and cold, high resistance to water and anti-corrosiveness are major advantages of a new multi-purpose industrial lubricant called Sotol.

Sotol, extensive laboratory and field tests have indicated, retains its lubricative powers and will not melt and run away even at a temperature of 1,000° (F.) or more. Among comparable lubricants, any of which still hold their form at 400° this has been considered exceptionally good.

At the other extreme, Sotol has proved it remains effective even to zero temperature, whereas comparable lubricants harden or "freeze" as temperatures drop below 32°.

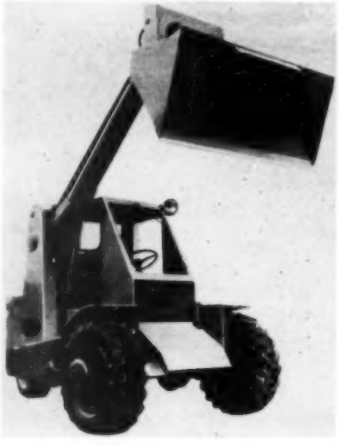
Sotol has demonstrated virtual immunity to destructive emulsification, washing away by water, and the ability to slow corrosion of surfaces to which it is applied.

The lubricant was made possible by use of a synthetically-formed base, largely a type of earth. Combined with the synthetic base is oil and other organic compounds. The lubricant has a transparent, amber color.

Front-End Loader

Manufacturer: Mixermobile Manufacturers, Portland, Ore.

Claims: Introduction of a new all-hydraulic Scoopmobile, Model H, is a culmination of 15 years of development of front-end loaders by the company's engineering department. The Model H has been christened the "one armed bandit" due to its single boom operation. The Model H comes equipped with ¾-yd. scoop, has a rated lift capacity of 4,000 lbs., and a standard discharge height of eight feet.



Vickers hydraulic steering, combined with Mixermobile planetary drive, provides maneuverability and power. The Scoopmobile has numerous uses as a handler of bulk materials such as coal, sand and gravel, etc. It is used, also, for leveling and backfilling.

An efficient operator can handle up to 120 yards of bulk material per hour with the Model H. The operator has full vision from a safe, completely enclosed cab.

Attachments for the loader include: Swivel type concrete hopper, lift forks, boom and crane.

Rear Dump Wagon

Manufacturer: La Plant-Choate Mfg. Co., Inc., Cedar Rapids, Ia.

Claims: The TR200 motor wagon, a hydraulically operated rear dump wagon, is used with the T200 two wheeled, rubber tired tractor. This is the same tractor used with the TS200 motor scraper. It's available with a choice of Diesel engines. One is a Cummins with 165 hp, and the other a Buda with 176 hp. Both are six cylinder engines. Scraper and wagon units are interchangeable. Each uses the same hydraulic system.

One of the features of this new unit is the stable wheel base. Four wheel air brakes make it possible to back the unit over the edge of a fill with complete safety.

An obstruction-free body interior plus a 70° tilting angle provide complete and easy discharge of all types of materials. The bottom of the body is of the double type construction, housing oak plank fillers to absorb loading shock. High-tensile steel is used for added strength and wearing quality. The unit is equipped with 21.00 x 25 24 ply rock lug tires. Top speed is 22 mph at a governed engine speed of 1,800 rpm.

An all steel cab is available for op-

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erator protection. It is equipped with safety glass and a rock guard for the rear window. All glass and the two doors are removable for summer operation.

Concrete Mixer

Manufacturer: Kwik-Mix Co., Port Washington, Wis.

Claims: A new, 3½-S Dandie concrete mixer is a tilting type, end discharge mixer and complies with AGC specifications for 3½ cu. ft. mixed material capacity plus 10%. The drum capacity for unmixed material is 5½ cu. ft.

The mixer has such features as multiple V-belt power transmission, improved design of the four mixing blades for faster cycles and more thoroughly mixed batches, an effortless tilting device that stops and holds the mixing drum in any position and a push-down tow pole that balances the mixer for easy, one-man spotting, hitching, and moving. A new locking device holds the tow pole securely in its socket, prevents machine swaying while towing and permits high speed travel.

Drum, drive shaft, and wheels on the new mixer rotate on antifriction bearings. The undercarriage is all-welded heavy plate steel. Standard size pneumatic tires plus leaf spring mounting on the steel axle, cushion all road shocks while transporting the mixer over roads. Power for operating the mixer is delivered by a single cylinder air cooled gasoline engine.

Overall dimensions are listed as 41 inch length, 65 inch height with a 43 inch shoveling height and 25 inch discharge height. The all-welded steel drum, 30½ inches deep and 30 inches wide, is supported on a strong box section yoke and is provided with a reinforcing ring at the 18 inch diameter opening.

Maintenance problems have been simplified on the mixer. High pressure automotive type fittings are provided on all antifriction bearings. Only five alemite fittings need to be serviced weekly. V-belts can be replaced quickly and easily. The engine house cover is easily removed for starting and servicing convenience.

Lubricant

Manufacturer: D-A Lubricant Co., Inc., Indianapolis, Ind.

Claims: An answer to the increasing demands for standardized gun-greases, resistant to water and extreme temperatures, is found in the development of D-A Lithium.

This new lithium-base lubricant combines the advantage of water resistance with a high melting point — providing tenacity to metal under the hottest operating conditions. Developed especially for the heavy-duty lubricant user to whom the stocking of specialized greases is a problem, D-A Lithium saves time and labor — and is equally effective in summer or winter in meeting the requirements of all pressure fittings and bearings. Tests indicate that D-A Lithium will not harden in bearings or separate in storage.

The manufacturer will produce this new pressure and bearing lubricant through their continuous-flow process, incorporating a high-percentage of heavier-base-oils. The lubricant is packaged in 400 and 100 lb. drums and 35 lb. pails.

Air Compressor

Manufacturer: Gardner-Denver Co., Quincy, Ill.

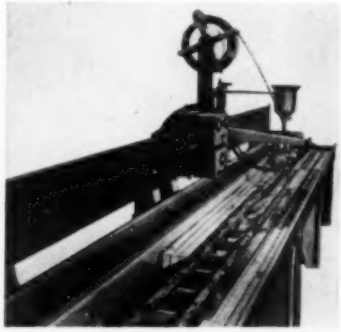
Claims: A new 600 cu. ft. portable air compressor has a rugged undercarriage which provides the stamina required for moving the machine over rough terrain. The engine was selected to provide reserve power at moderate operating speeds. The compressor is an 8 & 6½ x 6; operates at 1,200 rpm; and is designed with large valve areas, large radius air passages, and an engineered ratio of low pressure to high pressure cylinder.

The new "600" is a two-stage machine, with water-cooled compressor cylinders.

Automatic Welder

Manufacturer: Penn Tool & Machine Co., Danville, Ill.

Claims: An automatic welder and re-surfacing unit, capable of fast, low cost reclamation of track links, rolls, idlers, sheaves, etc., is called the Conservall. The unit automatically welds or re-surfaces (apply an overlay) any part or workpiece requiring a horizontal pass. With the addition of a power driven, variable rotation speed rotator, the Conservall will re-surface any circular work, such as rolls, idlers, sheaves, etc.



Complete tracks are placed in the trough and re-surfaced in a comparatively short time. Welding length and space between welds are automatically controlled and indexed by cams which are quickly and easily adjusted to handle any type track. The re-surfacing

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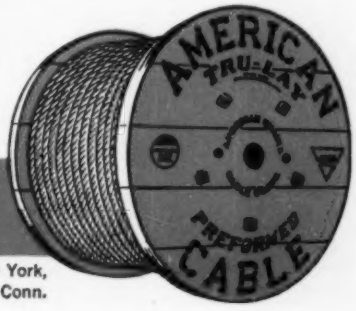

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operation is done by the submerged arc method. No flash is visible at any time.

The standard Conservall is 30 feet long, being made up of three 10 ft. sections. Each section is complete with work table or trough and rail for supporting the travel carriage and rack. The sections are matched and an assembly of two or more becomes a unit. Units can be made up of multiples of the standard section.

The welding head is supported by accurately machined slides which provide vertical and horizontal adjustments to meet welding or re-surfacing requirements without shifting the work piece, thus providing fast, easy work.

A 5 ft. long carriage track extension permits moving the welding head over the rotator when circular work is to be handled. The Conservall cross slide, with its conveniently located handwheel controlled traverse, insures smooth overlap of the weld bead. The rotator spindle speed is variable, from 0 to 7½ rpm. The spindle is adjustable angularly from horizontal to vertical.

Wire Rope Cutter

Manufacturer: Manco Mfg. Co., Bradley, Ill.

Claims: A new latch-type design wire rope cutter has been developed to supplement the Guillotine line of metal cutting equipment.

The Series 15 Guillotine is simple to operate. A click of the latch opens the anvil; material to be cut is laid in position, and main body of tool is raised back to vertical position which automatically locks tool in cutting position. Cutting time as little as seven seconds can be obtained, depending on pump assembly used.

The cutter exerts up to 50 tons thrust, which makes clean cut through up to 1¾ in. wire rope. Heavy-duty shear-type blades are removable for resharpening when needed. Frame design is heat-treated high-tensile steel. Latest type oil seals in honed cylinders prevent oil leakage. The basic cutting unit is available with a variety of electric and air-hydraulic pump assemblies, including foot lever and remote control operations. Weight of new unit is 75 lbs.

Cooling System Filter

Manufacturer: Spark-O-Liner Corp., Minneapolis 4, Minn.

Claims: Reduction of wet-sleeve pitting in industrial Diesel cooling systems by as much as 70% through application of the Perry cooling system filter, is announced by the manufacturer.

Pitting, caused by galvanic action in minute areas not adequately protected by rust inhibitor film, is eliminated through a cathodic current generated by the filter. This current, while small, is sufficient to induce the forces of corrosion to attack "sacrificial" corrosion-resistor plates in the filter, which are more vulnerable than metals in the cooling system.

Rusting, pitting, hardness deposits, acid or alkaline conditions, and insoluble impurities, are controlled by a combination of mechanical filtration, chemical additives, and electro-chemical protection.

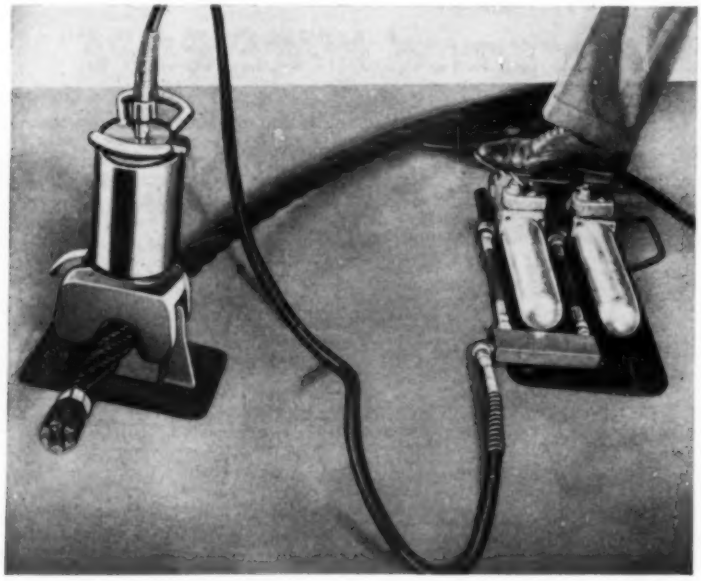
A synthetic zeolite exchange bed removes mineral hardness and dissolves previously deposited scale; insoluble particles are filtered out of the circulating coolant.

Acid or alkaline conditions are neutralized by a buffering agent added to coolant during filtration from the chemically activated element. Both chemical and electro-chemical methods are used to combat the more complex problem of corrosion.

The filter is available in three models, with capacities adequate for systems of from five quarts to fifty gallons. In cases of extremely unfavorable water, or for larger engine models, multiple filter installations are recommended.

In a single unit installation, the filter is attached to the engine or firewall with by-pass hose connections similar to a water heater. The coolant is chemically treated during filtration, and returned to the suction side of the water pump.

An increasing number of filter applications for Diesels have been reported in mining, oil field, and heavy construction operations.



Blueprint Cabinet

Manufacturer: Empire Development Corp., New York 38, N. Y.

Claims: The Draw-In-Dex cabinet files blueprints safely, neatly, and conveniently without wrinkles, creases or curled edges. It is designed to meet the needs of organizations using blueprints, drawings, tracings, surveys, maps, plans, charts, photostats, etc.

The cabinet accommodates 1,250 prints. An index file locates prints quickly. Any print is removable without disturbing the others. Suspension rods support drawings attached to manila hangers. Aluminum hangers permit filing a large number of draw-

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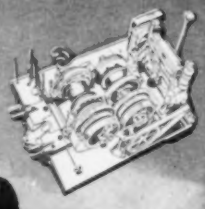

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HYDROCRANE - HYDROHOE

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ings together. The cabinet is designed so that when the front panel is opened, any drawing may be immediately filed or removed.

Specifications are: — Model 27-B — 48 in. high x 30 in. wide x 20 in. deep, price $139.50 FOB Alabama; Model 27-C — 48 in. x 39 in. x 20 in., price $159.50 FOB. 18 gauge steel top, 16 gauge reinforced steel sides. Index cards, manila hanger strips, and lock are standard equipment. Colors grey, green, and brown.

Gravel Plant

Manufacturer: Universal Engineering Corp., Cedar Rapids, Ia.

Claims: An addition to the 880 Gravelmaster series portable crushing, screening and loading plants is announced. The 880 Senior "R" incorporates new engineering developments to increase capacity yet keep traveling weight within state highway limitations. The plant features a 10 in. x 36 in. roller bearing jaw crusher, 30 in. diameter x 22 in. face star gear roller bearing roll crusher, and a 4 ft. x 10 ft. 2½ deck inclined gyrating screen. The plant is driven by a single 115-125 hp power unit mounted on the plant, or by a separate side drive through a universal joint connection from separate truck mounted power.

The 880 Senior "R" can be fed by shovel, truck, or dragline direct from pit to hopper or with optional 180° swivel feed conveyor. It also can be combined with a Universal 546P Primary for quarry operations.

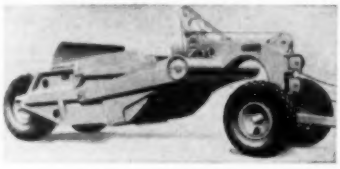
With the addition of the Senior "R," Universal now offers the 880 Gravelmaster in six standard two-stage gravel plants with capacities from 75 to 270 tons per hour.

Scraper

Manufacturer: Caterpillar Tractor Co., Peoria 8, Ill.

Claims: A new No. 60 Scraper is for use with D6 tractor power. The unit has a flat-bottom bowl and stinger blade engineered for loading and finishing characteristics. The reversible blade cuts a 7 ft. 8 in. swath; the bottom is double with steel beam fillers.

Capacity of the No. 60 has been increased to 7 cu. yds. struck and 9 yds. heaped. Top extensions or sideboards



are available to boost this capacity to 8.3 yds. struck and 11.5 yds. heaped. Maximum carrying capacity is 11.5 tons.

Also included are such design details as an unobstructed bowl, tapered roller bearings at the axles, induction hardened sheaves, and bulldozer-type ejection. Operation is by means of a cable control available for attachment to the tractor.

Shipping weight of the scraper is approximately 13,500 lbs.

Flood Lamp

Manufacturer: Phoenix Products Co., Milwaukee 16, Wis.

Claims: The Phoenixspun "Sturdilite" heavy duty flood lamp has now been designed as a portable unit. Equipped with a carrying handle and

a substantial pedestal base, and weighing about 12 lbs., the new lamp is especially adapted for use around heavy construction projects, dam and highway building, open pit mining, asphalt mixing plants, and for repair and trouble-shooting work by gas, electric, or telephone crews, and many similar operations.

Similar in general style and specifications to the standard shock-absorbing base model designed for equipment mounting, the "Sturdilite" is available for all voltages, with the standard model designed for 110-120 volts, in 150, 300, and 500-watt sealed beam lamps. It supplies a high degree of light intensity and ample beam spread. There is no reflector to tarnish or lens to break, since the reflector is in the light bulb. The light socket is spring mounted, and the unit comes equipped with a 4 ft. cord and connector.

Separation Screen

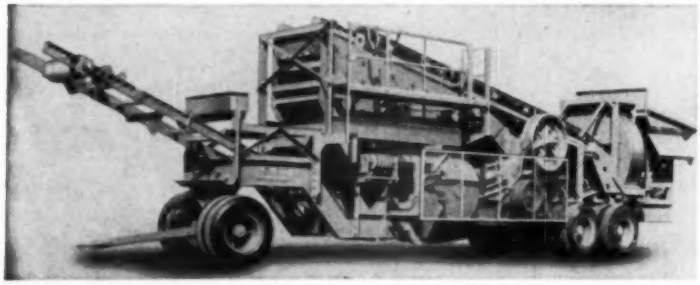
Manufacturer: Nordberg Manufacturing Co., Milwaukee 1, Wis.

Claims: The "Symons" V Screen is a new high capacity unit for sharp separation of wet or dry materials from 4 mesh to very fine meshes.

Combining a centrifugal action the equivalent of five times the force of gravity with a gyratory movement, the new screen has the ability, depending upon the type of material being screened, to increase existing capacities and provide product utilization heretofore difficult to screen. Since the screen is used with other equipment its capacity depends on other factors.

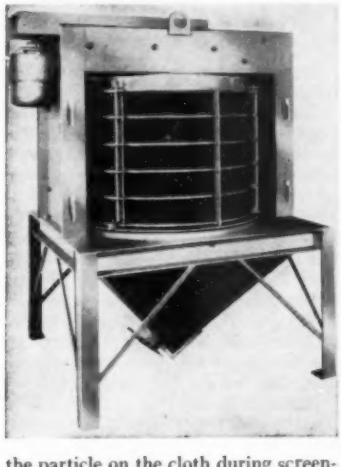
The screen's design makes it advantageous for use under vertical chutes. The unit is completely enclosed providing dustless operation and removable covers permit ready access. The actuating mechanism is mounted on roller bearings and the vertical frame is constructed of steel shapes.

This cylindrical screen, mounted



vertically, is presently manufactured in one size, 3 ft. high and 12 ft. in circumference resulting in 36 sq. ft. of screening surface. A cupped feed plate with radial vanes sets a little below the upper edge of the drum. Material to be screened enters through an opening in the top of the frame and is impinged by the feed plate against the inner surface of the drum. The oversize particles are held against the screen for a brief interval with the fines passing through. Using 14 gyrations to one drum rotation, each gyration of the drum produces an inward deflection of the material being screened. This frees the holes in the screening surface for the passage of undersize at the next contact and permits the material to drop a short distance. This process is repeated in a similar manner until the particle either goes through the cloth or is discharged as oversize.

Wear on the cloth is extremely low because there is no sliding action of



the particle on the cloth during screening. Whenever the particle and the screen are in contact, both move in the same direction at the same speed. When wire cloth is used, no special forming, hooks or metal reinforcements are needed and the cloth can be changed to a finer or coarser mesh very quickly.

When used for wet screening, water sprays are mounted in the lower assembly with sprays impinging upward and outward. The screen is built with various types of discharge bases either wet or dry depending upon installation requirements. In dry screening the natural fanning action carries the "air float" fines through with the undersize.

Steel Cutter

Manufacturer: Interstate Drop Forge Co., Milwaukee, Wis.

Claims: An improved line of bolt

Only BANTAM gives you all 3!

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Light-weight Bantam mounts on new or used truck . . . drives anywhere over paved highways, back-road bridges, or black top at full truck speeds . . . maneuvers in close quarters and off-highway locations, where bigger rigs can't go.

2 Big Work Capacity!

Rugged, fast-swinging Bantam digs up to 90 cu. yds. per hr. as dragline or shovel . . . lifts 10,000 lbs. on crane boom . . . handles ½ cu. yd. concrete bucket, 2400-lb. pile driver . . . digs up to 100' of 5' trench per hr. with hoe bucket. Eight fast-change attachments insure complete job versatility.

Less than $6200.00

(Less truck and mounting charges F.O.B. Waverly, Iowa)
Price includes complete dragline unit with std. 25' boom, drag bucket, fairlead and additional counterweight. Other attachments extra. Price subject to change.

3 Job-proved Economy

"One-man" Bantam costs only a fraction of the price of bigger machines . . . runs all day on 8 gallons of gasoline . . . averages *less than $100 repair* cost per year (based on actual records of *over 3000 Bantams* on all types of jobs all over the world). Mail coupon below for full details and free Bantam demonstration.

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The *LOW-COST* machine with the *BIG* work range

cutters, strap shears, hot line wire cutters, and sheet metal hand tools is now being introduced.

Interstate recently acquired the tool line of the Helwig Mfg. Co., St. Paul. This line is now re-appearing with heat-treated, drop-forged handles, plates, and jaws. The use of drop forgings, in place of castings, provides greater strength and rigidity, and a reduction on overall weight. Because they are full-forged, side plates cannot twist.

The patented gear principle of achieving leverage is responsible for extreme simplicity in design. Complicated toggle mechanisms are avoided.

Helwig replacement parts, as well as the complete line of 18 major tools, are being delivered immediately.

Stripping Shovel

Manufacturer: Koehring Co., Milwaukee 16, Wis.

Claims: Recently introduced, several models of this new stripping shovel are working in various sections of the country. The unit uses both 2 and 2½ yd. dippers, depending on digging conditions.

Using the same base machine as the standard 2½ yd. Model 1005, the stripper operates with a 50 ft. boom and 36 ft. dipper stick. This attachment allows a maximum dumping height of 40 feet and a reach of 60 feet with boom angle at 45°. By comparison, the standard 1005 shovel attachment, operating by chain crowd, carries a 26 ft. boom and standard 19½ ft. double dipper sticks for heavy-duty digging work. Features of the new hi-lift design include a single dipper stick with cable crowd and a twin box section boom structure for maximum strength and minimum weight. Unusually large sheaves are employed throughout to prolong cable life.

The 1005 hi-lift can be converted for lift crane, dragline or clamshell operation. The standard 60 ft. crane boom, with a rated lifting capacity of 79½ tons, can be increased to a maximum allowable 150 feet, including a 30 ft. boom jib. It will handle dragline buckets of 2½ to 4 yd. capacity or clamshell buckets of 3 to 4 yds. Normally the stripper is fitted with 42 in. shoes and has an overall crawler dimension of 13½ ft. width and 19 ft. 3 in. length as compared with the 30 or 36 in. standard shovel shoes and 11 ft. 11½ in. x 15½ ft. frame. Total weight of the machine as a stripping shovel is approximately 204,000 lbs.

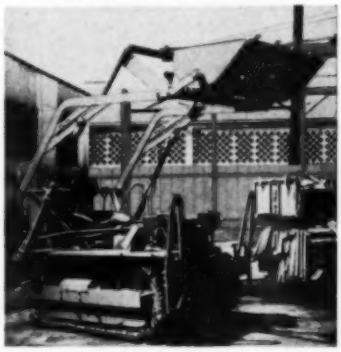
Spreader Box

Manufacturer: Wood Manufacturing Co., North Hollywood, Calif.

Claims: Four-wheel mounted, increased capacity, and screw-lifting adjustable tail gate are features of a new spreader box designed for measuring and forming stabilized base, roadmix, or hotplant materials into uniform windrows. It is said to meet the growing trend on the part of engineers to specify that materials dumped on the roadbed must be measured. The unit attaches directly to the dump truck and measures the materials as the truck moves along. The select or imported material flows from the truck through the adjustable gate of the spreader box and onto the base in one operation. Windrow capacities up to 8 cu. ft. are controlled by adjustable tail gate.

The spreader box saves straightening up dumped materials which are unmeasured and eliminates guesswork by providing controlled quantities of material.

Front End Loader



Manufacturer: Earl H. Pence & Co., Inc., San Leandro, Calif.

Claims: A new hydraulic-operated front-end bucket, designed expressly for the new long track "Agricat," crawler-type tractor, has been put on the market by the exclusive distributors of the tractor. The "Agricat" is a midget-sized (6 foot long) tractor.

The 5 cubic-foot bucket is powered by a Vickers 1,000 psi pump, feeding into two rams whose pushing capacity is 491 pounds per 100 pounds pump pressure, and a pulling capacity of 368 pounds per 100 pounds pump pressure. The bucket lifts to a height of 68 inches from the ground level, and is capable of being lowered four inches below track level. The new long track adds eight inches to the previous 36 inch track length, and gives the tractor stability in handling the bucket. The new long track is available in either standard steel tracks or on rubber tracks.

Centrifugal Pumps

Manufacturer: Rice Pump & Machine Co., Grafton, Wis.

Claims: Three larger sized pumps, namely the 20M, 30M, and 40M have been added to a line of self-priming centrifugal pumps. These pumps conform to the standard of the Contractors Pump Bureau of the Associated General Contractors of America.

The design includes cartridge type shaft seals, open type non-clogging impellers, hardened steel wearing plates, built in check valves, and straight line flow of water through the suction openings to the impeller.

New trade literature

Subject: **Soil Engineering**

Content: *Soil Engineering* is a readable 458-page volume intended primarily for those engineers and contractors in the civil, architectural, and agricultural engineering fields who have had no formal training in soil mechanics or soil engineering. Its purpose is to acquaint these practicing engineers with the origin, nature, and properties of soil and to introduce them to some methods of application of the principles of mechanics to problems in design and construction which involve soil. The book has many illustrations and examples of applications. After studying this book the reader will be better equipped to read more advanced treatises on soil mechanics and soil engineering. The subjects presented in the various chapters will be of value to railway, highway, and airport engineers. Structural and architectural engineers interested in foundations will find valuable information of an elementary nature in the chapters on consolidation and settlement of structures, retaining walls, bearing capacity, and pile driving. Engineers engaged in soil conservation, irrigation, and water control will be interested in the chapters on seepage, flow nets, and earth dam construction. The chapter on underground conduits is a comprehensive presentation of the principles of structural design of sewers, culverts, and water and gas mains. It will be helpful to city engineers engaged in sewerage design; railway, highway, and airport engineers who deal with the design of culverts and drainage pipe lines; and to engineers in the public utility field who are responsible for the design of pressure pipe lines. The author, Merlin G. Spangler is a research professor at Iowa State College. He is the author of approximately 50 bulletins, papers, and monographs on subjects in the fields of highway structures and soil engineering.

Where to get: Laurel Publishers, 325 Ash St., Scranton 9, Pa. ($6.50)

Subject: **Atomic-Hydrogen Arc Welding Equipment**

Content: A new, two-color, two-page bulletin on single-phase, 60 cycle atomic-hydrogen arc welding equipment has been made available. In addition to explaining the process of atomic-hydrogen welding, the new bulletin gives a description of the recently redesigned power generating equipment and lists its specifications, applications, and advantages. It also covers the features of the company's atomic-hydrogen torch.

Where to get: General Electric Co., Schenectady 5, N. Y. (GEC-598A)

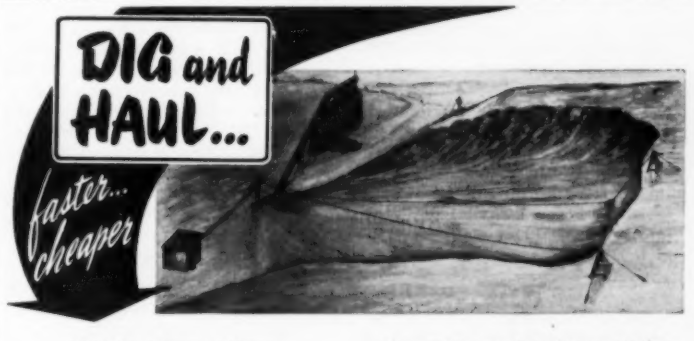
Subject: **Crawler Crane Catalog**

Content: A catalog describing the new American crawler crane points up the availability of interchangeable fronts — crane, shovel, dragline, or pull shovel and lists overall specifications. This is the first catalog covering this ¾ yd. machine.

Where to get: American Hoist & Derrick Co., St. Paul 1, Minn.

Subject: **Tractor Maintenance Guide**

Content: Much of the life in your Diesel tractor depends on you, according to this new *Maintenance Guide for Track-type Tractors.* Four-color cartoons tell what happens when an owner and service technician compare job notes. The two men discuss basic methods of



With One Man

Above — Sauerman Drag Scraper cuts deep into hill and moves gravel to crusher

SAUERMAN SCRAPER

Why complicate what should be — and can be — a simple job? All you need to move material quicker, at lower cost, is an efficient Sauerman Scraper machine — the heart of which is the uniquely shaped Crescent scoop. The patented design of this bottomless "bucket" permits faster loading to capacity . . . smooth travel of load across the ground . . . clean, automatic dumping at discharge point.

One easily trained man can handle the entire operation as well as the small amount of maintenance required. First cost of a Sauerman Drag Scraper is moderate and Diesel, gasoline or electric power consumption is light, considering the tonnages handled.

Sauerman Engineers are always ready to consider your particular digging or stockpiling problem — to give you the most practical and economical solution to this problem.

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¾ cu. yd. Sauerman scraper moves 1½ ton load of crushed ore from stockpile to hopper. The round trip ranges from 200 ft. to 600 ft. and the scoop averages 40 trips an hour.

Here is a Sauerman Crescent scoop equipped with a trolley carrier for a track cable scraper installation. This type of installation, with the head end elevated considerably above the tail end, permits gravity return of the empty scoop from dumping point to digging point.

Sauerman Bros., Inc.

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making tractors last longer and do better work at lower cost. Operating adjustments are simply explained. Proper care of tractor components, such as tracks, seals, fuel system, and filters, is shown. Also featured is the opportunity to economize by having the dealer rebuild worn parts. *Maintenance Guide for Track-type Tractors* is the second in a cartoon booklet series devoted to equipment maintenance. Caterpillar dealers are using the 24-page booklet in combination with a tractor maintenance movie entitled, *A Thing or Two*.

Where to get: Caterpillar Tractor Co., Peoria 8, Ill. (Form 30247)

Subject: **Elevating, Conveying, and Power Transmission**

Content: A new bulletin for the cement and rock products industries contains information on drive and conveying chains and bulk handling equipment. For instance, a table in the book shows how easy it is to select a stronger chain if the chain now in service is not suitable. Complete details and specifications of all chains used in this industry are given. Cutaway and diagrammatic views of chain show points of importance to observe in specifying equipment of this type. Several pages on sprockets and traction wheels explain the correct type to order for almost every application. Basic types of bucket elevators are illustrated and described with correct applications noted. Apron and pan conveyors and feeders are illustrated and described. A section on conveyor idlers and accessories together with application photographs of belt conveyor systems simplify the selection of this type of equipment. Flat spray nozzles are also described.

Where to get: Chain Belt Co., Dept. PR, Milwaukee 1, Wis. (Bulletin 52-53)

Subject: **Diesel Uses**

Content: The latest issue of The Dependable Diesel presents case histories of the performance of Cummins Diesels in a variety of applications. Coal field, hauling, and construction uses are discussed in the 24 page issue.

Where to get: Cummins Engine Co., Inc., Columbus, Ind.

Subject: **Rock Bits**

Content: Forged steel rock bits in three socket series and seven types of hollow steel drill rods are described and illustrated in Catalog V-1708. Bits for the quarry, mining, construction, and other heavy industries are shown for 7/8, 1 and 1¼ in. sockets. Bit sizes range from 1¼ to 2⅜ in. Either center or single side hole is obtainable. Companion drill rods, for use with the bits, are said to be produced in hexagon, quarter octagon, and round types. Their lengths are to 30 ft. standard, with extra length on special order. The literature also presents a cast steel knock-off tool for easy removal of the bit from the drill rod.

Where to get: Drill Bit and Tool Co., Midland, Pa.

Subject: **Dumper Bulletin**

Content: A sixteen-page, illustrated bulletin describes the Muir-Hill Model 14B dumper. Specifications are also included for the unit. The dumper has a capacity of 4¼ cu. yds. and is equipped with a six cylinder Diesel engine. The machine features a rotating seat and steering wheel which turn the driver rather than the machine. The dumper can be supplied with either the standard earth moving or rock type body.

Where to get: E. Boydell & Co. Ltd., Old Trafford, Manchester 16, England

Subject: **Long-Range Weather Forecasting**

Content: Accurate, long-range weather forecasting, a comparatively new science, and formerly a service only available to a few at high cost, is

now available to all for a few cents in the form of a monthly weather map. This map predicts weather conditions 30 days in advance for each month of the year — by days, cities and areas in the United States. In addition, expected rainfall and anticipated average temperatures are provided — by cities. Predictions up to six months in advance, in ten day periods, are also available for those who must look that far ahead. The map is printed in three colors. It is large — 11¼x17½ in. — a handy size for hanging on the wall. Maps are available, individually, on a yearly subscription basis, one map sent each month, two weeks before the month predicted. Maps are also available in any quantity. More information and a free 30-day weather map is offered by the publisher.

Where to get: Blewett Weather Service, 919 E. California St., Pasadena 5, Calif.

Subject: **Control Selection**

Content: A new eight-page selection guide for a wide range of electric and electronic controls, devices, and accessories is designated as GEA-5781. The bulletin contains quick-reference selection data, photographs, and listings of additional publications which give complete information. Products included are: manual, magnetic, combination, and reversing motor starters; pushbutton stations; relays; limit switches; solenoids; photoelectric relay; electronic timer; electronic relay; pressure and vacuum switch; float switch; pressure governor; reduced-voltage starter; Thy-mo-trol drive; and smoke density indicator and control.

Where to get: General Electric Co., Schenectady 5, N. Y.

Subject: **Steam Generators**

Content: Recently a new series of extensive efficiency tests were given Vapor-Clarkson steam generators which are used to heat diesel powered trains and in industry for processing steam. On test, the OK 4625 steam generator, said to produce 2,700 lbs. of steam per hour — actually produced, from cold feed water 3,150 lbs. of steam per hour at 285 pounds steam pressure, 82.34% efficient, for a sustained test period and the steam was 99.77% dry. The unit automatically modulated down to produce 1,008 lbs. of steam per hour, at similar pressures and efficiency. On additional tests the unit automatically turned on and off 25,500 times never failing to light up properly. On test, the OK 4740 steam generator which is sold to produce 4,500 lbs. of steam per hour — actually produced, from cold feed water 4,984 lbs. of steam per hour at 285 lbs. steam pressure, 82.58%

efficient for sustained periods and the steam was 99.50% dry. The unit automatically modulated down to produce 1,821 lbs. of steam per hour, at similar pressures and efficiency. Bulletin 533 revision "A" describes these tests in detail.

Where to get: Vapor Heating Corp., Department PR, 80 East Jackson Blvd., Chicago 4, Ill.

Subject: **Anti-Rust Paints**

Content: A new application bulletin contains information on the selection and use of anti-rust paints for all metal surfaces. The new bulletin, contains a description of the chemical properties of anti-rust paints and discusses the various methods of applying these paints. It also explains how and when to use colored finish paints over anti-rust paints.

Where to get: Paint Corporation of America, Fidelity Building, Cleveland 14, O. (No. L-4285)

Subject: **Transmission Topics**

Content: Publication of the first issue of *Transmission Topics*, a new magazine-type house organ designed to cover on-and-off highway and industrial users of heavy duty transmissions, is announced. With on-the-job illustrations, the issue covers a variety of users in heavy-hauling, contracting, logging, petroleum, mining and other fields. A feature article describes how the new International Harvester proving grounds near Phoenix, Ariz., "gives the business" to Fuller-equipped trucks on an around-the-clock schedule.

Where to get: Fuller Manufacturing Co., Kalamazoo, 13F, Mich.

Subject: **Wire Rope Catalog**

Content: This pocket sized catalog with 170 pages is the ninth and latest edition. A few of the topics discussed are: Preformed, internal lubrication, haulage or standing ropes, standard hoisting ropes, flexible hoisting ropes, non-rotating ropes, aircraft cable, corrosion-resisting ropes, galvanized ropes, galvanized strand, slings, and fittings and lubricant.

Where to get: Macwhyte Co., Kenosha, Wis. (Catalog G-15)

Subject: **Bin Level Indicators**

Content: A new 1952 catalog describes and illustrates a complete line of bin level indicators which are widely used throughout industry to indicate the level of granular and pulverized materials stored in tanks, silos, hoppers, and bins. These units also actuate various types of signals, if required, and can be used to start and stop loading and filling machinery, as required by the level of content in the storage unit. The new catalog supplies complete installation data for the various types of units; for thin or thick walled bins, for inside or outside location, and for suspended interior installation. Numerous wiring diagrams are included making the book a useful reference manual for installation and maintenance crews. The catalog also describes a companion product, the Bin-Flo Aerator unit, which is used to introduce low-pressure air into dry, finely ground materials which tend to pack and bridge, and thus restore their fluid characteristics.

Where to get: The Bin-Dicator Co., 13946-56 Kercheval, Detroit 15, Mich.

Subject: **Product Line**

Content: A new four-page, two-color bulletin describes the following products: Generators AC, ringing power machines, motor-generators, rotary converters, high frequency generators, and power plants. Specifications are listed for all units.

Where to get: Kato Engineering Co., Mankato, Minn.

Subject: **Soil Sampling**

Content: While still comparatively new, the science of soil mechanics has become an important factor in foundation engineering and design. Heavy structures and buildings require a thorough investigation of subsurface conditions. This 16-page illustrated catalog describes soil sampling tools in general use. It represents the collection of information about soil sampling techniques accumulated during the past 33 years.

Where to get: Acker Drill Co., Inc., Scranton 3, Pa.

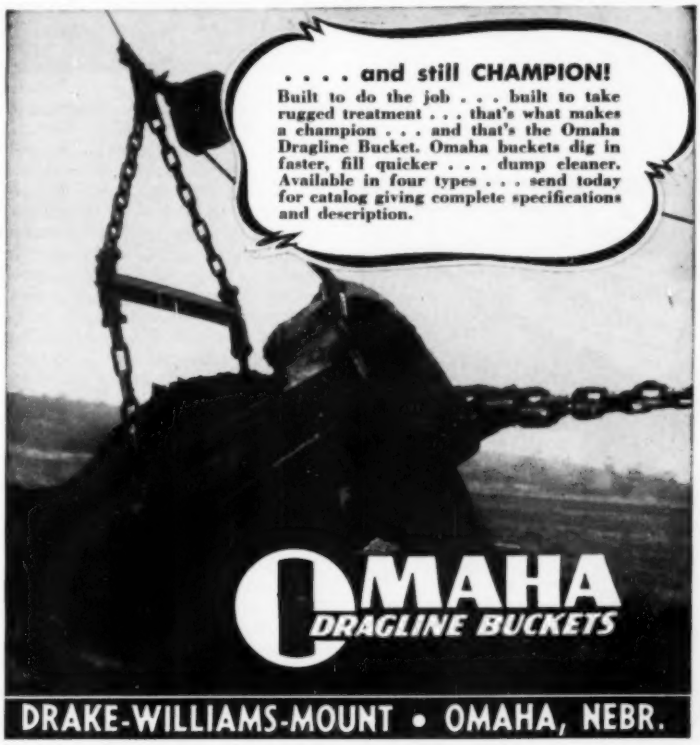
Subject: **Conveyor Topics**

Content: The latest issue of the *S-A Conveyor* contains reports on a variety of conveyor installations including the following: An aggregate and mix plant in Canada; crushing plant for Mesabi ore; and coal handling for small steam plant. The 20-page issue contains many illustrations.

Where to get: Stephens-Adamson Mfg. Co., Aurora, Ill.

Subject: **Wheel Type Ditchers**

Content: Two new catalogs describe the Buckeye Model 314 and Model 303 wheel type ditchers. The Model 314 catalog explains in detail the construction and operational features of this pipeline and utility ditcher which features with a fluid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Built to do the job . . . built to take rugged treatment . . . that's what makes a champion . . . and that's the Omaha Dragline Bucket. Omaha buckets dig in faster, fill quicker . . . dump cleaner. Available in four types . . . send today for catalog giving complete specifications and description.
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coupling for more efficient power transmission and longer service life through cushioning of shock. Other features of the 314 described are the hydraulic digging wheel hoist, one-piece digging rims with variable bucket spacing, flexible-type gear traction drive, and a transmission which working with the fluid coupling provides an infinite range through eight forward and two reverse digging speeds, four roading, and six conveyor belt speeds. The 303, is a versatile, medium utility ditcher. Like the 314, the Buckeye 303 has a split torque type conveyor drive and one-piece digging rim designed for variable bucket spacing.

Where to get: Gar Wood Industries, Wayne, Mich.

Subject: **Cutting Tool**

Content: A two-color, 8-page catalog describes the Guillotine line of portable hydraulic cutting tools. This illustrated catalog shows six series of the tools and 26 different models—their uses, capacities, and specifications. The tools exert up to 50 tons thrust, and cut materials ranging from ½ in. steel rod to 3½ in. armored cable. The new catalog also lists a complete line of special and accessory equipment, such as gauges, control valves, hot cutting units, hydraulic pump assemblies, etc.

Where to get: Manco Mfg. Co., Bradley, Ill.

Subject: **Hose Assemblies**

Content: A new 8-page, illustrated catalog gives specific data on all types of industrial rubber hose assemblies. Specifications are listed for high and medium pressure hydraulic hose assemblies. Air hose assemblies are also listed as well as oil resistant grease hose assemblies.

Where to get: Carlyle Rubber Co., 64 Park Pl., New York 7, N. Y. (Dept. F)

Subject: **Power Wheelbarrow**

Content: Low cost material handling with Moto-Bugs is pictorially shown in a new 4-page bulletin. Introduced about 4 years ago as a power wheelbarrow for construction work, it has since been developed into an all-around materials handling device through interchangeable front end attachments. The bulletin contains 25 action photographs that demonstrate operation in construction, industry, and maintenance work with the 10 cu. ft. hopper body; in shipping, building, and manufacturing work with the 1,500 lb. platform body; in freight depots, factories, and receiving docks with the 1,000 lb. hydraulic fork life attachment.

Where to get: Kwik-Mix Co., Port Washington, Wis.

Subject: **Engineering Soil Survey Mapping**

Content: This bulletin includes five related papers sponsored by the Committee on Surveying and Classifying Soils In-Place for Engineering Purposes. In addition to these papers on airphoto interpretation of engineering and geological features of terrain, this bulletin contains information compiled from the U. S. Geologic Survey, U. S. Department of Agriculture (Division of Soil Survey) and the Soil Conservation Service. Lists of geologists and soil scientists and current geologic and agricultural survey mapping in progress are included for reference material. A descriptive folder issued by the U. S. Geological Survey on topographic maps is included in a pocket opposite the last page of the bulletin. The papers are: (1) "How to Calculate a Calculated Risk" by Donald J. Belcher, professor, school of engineering, Cornell University. This paper describes how an engineering appraisal of limestone landforms can be made and discusses the risks involved in their interpretation. (2) "Engineering Significance of Sand Areas Interpreted from Airphotos" by A. Morgan Johnson, associate professor civil engineering, Wayne University, Detroit. This paper describes the engineering mapping and analysis of highway problems associated with glacial land forms in northwestern Indiana: Lake bed, sand dune, outwash, plastic and semiplastic drift and combinations of shallow sands on plastic drift interspersed with muck, peat, and flood plains. (3) "Piedmont Soils Identified by Aerial Photographs" by John C. Stevens, associate research engineer, Virginia Council of Highway Investigation and Research. This paper describes the engineering mapping and analysis of deeply weathered soils derived from igneous and metamorphic rocks in the Piedmont area and of soils derived from the sedimentary rocks of the triassic area in Virginia from aerial photographs. Significant landforms with typical soil data are presented with methods used in their airphoto identification. (4) "Mapping of Geologic Formations by the Application of Aerial Photography" by William F. Browning, Jr., research assistant, Virginia Council of Highway Investigation and Research. This paper describes the geologic mapping of an area in the Ridge and Valley Province of Augusta County, Va. The parent materials are largely sedimentary. Test data are presented for parent materials and derived soils. This paper contains information on procedure, methods and results of the application of aerial photography to geologic mapping. (5) "Preparation of Soil-Engineering Maps from Agricultural Reports" by Thomas H. Thornburn, research assistant professor in civil engineering, University of Illinois, and J. R. Bissett, associate professor of civil engineering, University of Arkansas. This paper describes a method of evaluation of county soil maps.

Where to get: Highway Research Board, National Research Council, 2101 Constitution Ave., Washington 25, D. C. ($1.50 — Bulletin No. 46)

Subject: **Protecting Buried Pipes from Corrosion**

Content: Protecting buried pipes from corrosion with plastic tapes is the subject of a new eight-page illustrated booklet. It describes both high speed machine and hand wrapping techniques for protecting natural gas and water mains, joints and leads from the corrosive effect of soil chemicals, oils and fats, stray ground currents, and soil bacteria and fungi. The booklet cites some of the problems resulting from pipe corrosion as well as actual case histories of instances where the wrapping methods described have been used. In addition, it gives tables listing the physical and electrical properties of the tapes.

Where to get: Minnesota Mining and Manufacturing Co., 900 Fauquier St., St. Paul 6, Minn.

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Notes from the manufacturers

Allis-Chalmers Manufacturing Co., Milwaukee 14, Wis., has named H. G. Karcher, manager of the firm's Memphis, Tenn., branch. He was industrial sales manager of the Kansas City, Mo., branch, tractor division since 1944. He succeeds the late G. M. Malmo, who died the 7th of April. Karcher has a background of more than 25 years in the industrial equipment business. He has been president of the Karcher-Wolter Equipment Co., Chillicothe, Mo., and the Karcher-Wolter-Foley Co., Wichita, Kan. Just prior to joining Allis-Chalmers he was with the War Department for two and a half years as civilian warehouse superintendent, and property and supply officer at the Waco, Tex., Army Air Field.

American Bosch Corp., Springfield, Mass., has been asked by Donald P. Hess not to consider him for re-election as president of their wholly-owned subsidiary, Arma Corp. He asked the directors also to recognize that the greatly increased activities of the parent company in new product development and in the establishment of mass production facilities for some of its earlier developments create a job demanding his whole attention. The board granted this request and elected to the presidency of Arma Corp. one of its co-founders and its former president, Arthur P. Davis, who has returned from an early retirement undertaken in 1946. Hess was advanced to vice chairman of the subsidiary's board of directors and will continue as president of the parent company.

Wm. Bros Boiler and Manufacturing Co., Minneapolis, Minn. has appointed A. O. "Archie" Williamson manager of the road machinery division. As one of the three division managers, Williamson will direct all sales programs, advertising, and new product development for the road machinery division. He will supervise and work closely with the distributor sales organization. Williamson joined the firm in 1933, when the road machinery division was formed. He has served as sales engineer and general product engineer prior to being named manager. Before 1933, Williamson had extensive experience in product design and sales in the construction equipment manufacturing industry, including a specialized background in rotary snow plow design.

Buda Co., Harvey, Ill., announces the appointment of J. C. Baseheart as general sales manager of the engine division. Baseheart, who is now headquartering at Harvey, is responsible for all wholesale and retail sales of engines and generators. Baseheart, associated with the company for 26 years, was transferred to the Harvey office in 1951 as sales manager after serving 11 years as president of Buda Engine & Equipment Co., Dallas, Tex. Previous to this, he was transferred to the Oil Field Division of the company in 1929 and appointed manager of this division in 1935. Since joining the company in 1926, Baseheart has worked in various departments of the company, including the service department as a service engineer in the eastern territory.

Chain Belt Co., Milwaukee 4, Wis., is now occupying its new administration building, located at 4701 W. Greenfield Ave., Milwaukee. For the past 50 years, the firm had its executive headquarters at 1600 W. Bruce St., Milwaukee. The new building, of brick, stainless steel, and glass construction, is directly adjacent to its manufacturing facilities, and houses the offices and departments of general administration, field sales administration, sales promotion and advertising, purchasing, accounting, statistical, tax, cost, and castings sales.

Cleco Division of the Reed Roller Bit Co., Houston, Tex., has announced the appointment of Chas. H. Harden & Co., Inc., 2221 Fourth Ave. South, Seattle 4, Wash.; Highway Equipment & Supply Co., 21st and N. Sts., Lincoln, Neb.; Long Beach Welders' Supply Co., Long Beach 13, Calif.; and E. W. Harman Co., 819 W. Fifth Ave., Columbus 8, O., as distributors for the company's line of air tools.

Cummins Engine Co., Inc., Columbus, Ind., announces that three additional members were elected to the board of directors at the annual meeting of the shareholders. They are: L. W. Beck, vice president — sales, D. J. Cummins, vice president — engineering, W. M. Harrison, vice president and treasurer. Beck joined the company in 1939 as manager of the Chicago dealership. Cummins has been with the company since its

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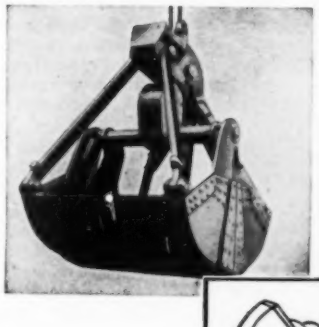

In this type the large deck area achieved means bigger payloads in stock piling and barge rehandling work. Erie's booklet on 2-line buckets gives you complete data on this type and 3 other classes of Erie Buckets. Write for copy today.

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1½ Yd.	32.3 Sq. ft.
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formation in 1919. In 1943, Harrison joined the organization as assistant to sales manager and was named vice president and treasurer in 1948. At the same meeting, the following directors were re-elected: Clessie L. Cummins, honorary chairman; Irwin Miller, chairman; E. G. Crouch, C. R. Fox, R. E. Huthsteiner, Hans L. Knudsen, V. E. McMullen, Mrs. Nettie S. Miller, and David B. Stern.

Detroit Diesel Engine Div., GMC, Detroit 28, Mich. says that the division completed a four month series of courses in Diesel engine operation and maintenance on the Mesabi Range in northern Minnesota. Over 250 equipment supervisors and mechanics representing 30 mining companies attended the one week courses which started the 7th of January. The school was given by one of General Motor's nine mobile training units which are currently operating in distributor and on-the-job locations throughout the United States, Canada, and Mexico.

Drill Bit & Tool Co., Midland, Pa. has appointed several new distributors for Midland Throwaway forged steel rock bits. The new distributors of these disposable rock bits for mining, quarrying, construction, and other heavy industrial operations are Allied Equipment, Inc., of Miami; Austin Powder Co. of Cleveland; Guyan Machinery Co., of Logan, W. Va.; Mine & Mill Supply Co. of Birmingham; Schroeder Brothers of Pittsburgh; and E. F. Marsh Co. of St. Louis, Mo.

E. I. DuPont de Nemours and Co., Wilmington 98, Del., says that the 150th anniversary of the establishment of the company will be marked the 18th of July at the site of the first Du Pont powder mills on the banks of Brandywine Creek near Wilmington. The ceremonies will include a simple historical dramatic prologue, addresses by company officials, and the dedication of a marker on the site of the first plant. About 6,000 spectators — representatives from the 71 plants and Wilmington offices, retired and present employees, and guests — will be on hand for the program. In the course of the program on the Brandywine, Crawford H. Greenewalt, president, and Henry B. du Pont, vice president and member of the executive committee, will speak, while Walter S. Carpenter, Jr., former president and now chairman of the board, will dedicate a marker formed by one of two huge millstones ordered from France by the founder of the company in 1801. The stone weighs about seven tons, and its function, by the application of water power, was to grind the ingredients of black powder —sulfur, charcoal, and saltpeter. The site of the 18th of July program is on the property of Mrs. Francis B. Crowninshield, a direct descendant of Eleuthere Irenee du Pont, founder of the company. She lives in the house that he began building in 1802, and into which he and his wife, Sophie, and their children, moved in 1803. The ceremony is being held one day in advance of the actual anniversary date, as it was on July 19, 1802, that E. I. du Pont arrived on the Brandywine to begin construction of his first mill. The shift was made to avoid conflict with weekend plans of those attending the ceremony. The occasion marks the growth of a small mill filling the need of a young nation for blasting and gun powder, into an organization employing 87,000 men and women, owned by 138,000 stockholders, selling thousands of chemical products to more than 75,000 customers, and buying from more than 30,000 suppliers.

Gar Wood Industries, Inc., Wayne, Mich., has appointed R. S. (Dick) Jay sales manager of the Findlay division of Gar Wood Industries. R. M. Steegman was advanced to Jay's former position of assistant sales manager in charge of Buckeye equipment and David J. Davis was named assistant sales manager in charge of tractor equipment. An engineering graduate of Washington State University, Jay served from 1938 to 1941 as an industrial engineer with the L. T. Gillian Co. and in 1941 he joined the Consolidated Vultee Aircraft Co. as supervisor of industrial engineering. Jay came to Gar Wood in 1948 as district manager, during which time he directed, on special assignment, the nation-wide sales promotion of Buckeye ditching equipment. In 1950, Jay was transferred to the Findlay division as assistant sales manager, a position which he held until his present appointment. Steegman has been with Buckeye since 1936 when he joined the company as a drafting clerk. After holding several positions he was appointed assistant to the sales manager in 1947 and later the same year was named district manager of the midwest. Davis joined Gar Wood in 1940 and after army service returned in 1946 as sales coordinator. He was appointed southeast district manager in 1948.

General Tire & Rubber Co., Akron, O., announces two major appointments in the sales organization. Howard A. Bellows, named vice president at the board's annual meeting has been placed in charge of all General's replacement tire and tube sales, and John E. Powers, trade sales manager, is promoted to general sales manager of plastics and special products. Bellows, a sales executive with General since 1929, when he was named New York branch sales manager, has been operating out of the Akron office since July 25, 1951, when he assumed the duties of S. S. Poor, former vice president in charge of retail merchandising. In his new capacity, Bellows also becomes the operating head of the nation-wide sales organization handling more than 3,000 independent distributors. Powers, in the rubber business since his graduation from Harvard in 1925, has been with the company since 1934. He was promoted from New York branch manager to special duties on the executive sales staff in 1945, and was named manager of automobile tire sales in 1946. He was promoted to trade sales manager on June 18, 1951.

Goodyear Tire & Rubber Co., Akron 16, O., and one of the nation's leading asphalt producers have joined forces to further develop work on rubberized surfaces for playgrounds and other recreational areas. The Berry Asphalt Company of Chicago and Magnolia, Ark., has been given distribution rights on Goodyear's pelletized rubbers. These rubbers have been tested successfully over the past several years. In addition to projecting the rubber playground program, both companies are engaged in the development of synthetic rubber powders for use in asphalt mixes for highway construction. Goodyear's pelletized rubber is suitable not only for playgrounds, but as a surfacing material for walks, bridge floors, railroad crossings, and other installations requiring a resilient, noiseless, waterproof, and flexible surface.

International Harvester Co., Chicago 1, Ill., announces that Neal Higgins, sales consultant, was recently awarded a Certificate of Servvice by the U. S. Department of Commerce for his work as director of the Construction Machinery Division of the National Production Authority. Higgins was one of 188 American business executives who were honored at a luncheon given by the Business Advisory Council

TO ADVERTISE: All advertising in this section is payable in advance. Rate: $1.00 per line, or $12.00 per inch of 12 lines. Minimum charge $4.00. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date—15th of preceding month. Example: January closes December 15th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

P&H dragline 1055 LC serial 12230, 80 ft. boom, 4 yd. 110 ft. boom, 3 yd. Lima 101 combination dragline, shovel front. HD10 bulldozer. All in good condition.

Dixon Block Coal Company, Inc.
RFD 1
Fairmont, Illinois

Bucyrus-Erie 320-B electric shovel, Serial No. 4957, mounted on Amsco shovel crawlers, operating on 4100 volts with Ward-Leonard control; Equipped with 75 ft. boom, 54 ft. dipper handle and 12 cu. yd. bucket. Machine can be seen in operation and is available May 15, 1952. Good condition. Write, wire or phone

The Pioneer Mining Corporation
Appleton City, Missouri

Model No. 104 Northwest dragline with 50 foot boom and 1¼ yard dragline bucket. New type cats. Located in Chicago, Ill., area—ready to go. Price $4000.

Errol C. White, R.R. 2, 143rd St., Lockport, Ill.

Bucyrus-Erie 10-B shovel. Boom, backhoe and trailer for sale. Working every day.

D. L. McEndree
2017 S. Arlington St. Akron 6, Ohio

SALE — RENT
GUARANTEED LIKE NEW

1949 LORAIN 820 2 C.Y.
HI-FRONT SHOVEL, CRANE, DRAG

CHEMICAL CO.
145 W. 63 St., N.Y.C. MU 5-6826

Northwest model 25; 6; 80D; 95. Manitowoc 6500; 4500 new — will rent. Bucyrus 54-B; Monighan 5W; 7W; 9W; 450.

A. W. Nevers Phone 32 Mt. Pleasant, Iowa

Bucyrus-Erie 15-B magnet crane, 39" magnet belt-driven generator, diesel engine drive, late 59,000 series, completely rebuilt within past year. In excellent working condition. Location eastern Iowa. Box 3478

Bucyrus-Erie 10-B magnet crane 3 KW generator and 29" magnet, 65,000 serial number, machine in excellent working condition, for immediate sale. Located eastern Iowa. Box 3477

We Specialize
On Exclusively Used

mechanically sound, late model diesel Bucyrus-Erie and Northwest shovels, cranes, draglines and pullshovels. Our list of Bucyrus-Erie 15-B's, 22-B's, 38-B's and 54-B's and Northwest 25's, 6's, 80-D's and 95 machines is the most complete and comprehensive inventory of used machines of these models available. We also list walking draglines and all attachments.

J. C. French Company
226 Berry Parkway Park Ridge, Illinois
Tel. TAcott 3-4927

Bucyrus-Erie GA-2 No. 9764 combination shovel and crane. In good condition. Contact

G. Beemsterboer
11732 South Yale Avenue Chicago, Illinois
Pullman 5-6066

Railroad ties—second hand; mostly top-grade cedar, suitable for shoring, blocking, temporary work, etc.

Walter H. Knapp, Inc.
2426 No. 30th Street
Milwaukee 10, Wisconsin

Shovel front complete for Model 10-B Bucyrus-Erie. Good condition. S-1970 (B). SALE PRICE F.O.B. LOUISVILLE, KY. $850

Northwest Model 104 1-yd. shovel with heavy duty Amsco rock bucket, General Motor diesel engine 3-71 std. treads crawler mounted. Good operating condition. S-2000 (B). SALE PRICE F.O.B. LOUISVILLE, KY. $6000

Brandeis Machinery & Supply Co.
Brook & Warnock Sts. Louisville 8, Ky.

Locomotives, 7 to 80 tons, diesel, gas (7).
Crushers: 18x36; 30", 42", 54" gyratories.
Locomotive cranes, 30 & 18 tons, gas, steam.
Walking draglines, 3, 5, 7, 12 yds.
Euclid, Mack trucks, rear, 10 yds. & 32 tons.
Floating derricks, 30 and 15 tons, steam.
McMyler Whirley gantry crane, elec., 25-ton.
Shovels, draglines, cranes, 1½ to 10 yds.
Diesel-elec. generator, Nordberg, 875 KW.
C-Bessemer 1000 HP diesel marine engs., new.
Blaw-Knox 400 bbl. bulk cement bin.
Buckeye 120, 160, 224; Parson 25 trenchers.
Rotary dryers, kilns, 54"x40', 9'x10'x170'.
B-Erie shovel front att., 2¼-yd., 52B-55B.

H. Y. Smith Co., 828 N. B'way, Milw. 2, Wis.

ALLIS-CHALMERS, Model HD-19 tractor with Gar Wood cable control tipdozer and double drum control unit.
BUCYRUS-ERIE 22-B shovel, dragline, and lifting crane.
CATERPILLAR, Model D-8 tractor with LeTourneau cable tipdozer.
NORTHWEST, Model 25 dragline with 40' boom and IHC engine.

For further information, contact

E. F. Craven Company
P.O. Box 539 Greensboro, North Carolina

IMMEDIATE DELIVERY

BUCYRUS-ERIE 44-B chain crowd shovel with 2 cu. yd. dipper; powered by Buda diesel engine and equipped with Kohler light plant. New set of tracks. Machine ready for work. F.O.B. New York. $15,000.

INTERNATIONAL Model TD9 tractor with Isacson angledozer. 16 in. tracks completely reconditioned. F.O.B. Poughkeepsie, New York. $4750.

INTERNATIONAL TD18 tractor equipped with Bucyrus-Erie hydraulic bulldozer, completely rebuilt. $8000.

H. O. PENN MACHINERY CO., INC.
140th St. & East River New York 54, N. Y.
Telephone CYpress 2-4800

May We Help You?
If you do not find the equipment you want listed in these columns, write to:
Excavating Engineer
South Milwaukee Wisconsin

Wanted: Bucyrus-Erie 54-B used dragline with wide treads and 100 foot boom.

Geo. F. Smith Company
5215 Manchester Avenue
St. Louis, Missouri

HELP WANTED

Walking dragline operator required to train new operators and supervise manual handling of new 8 cu. yd. Bucyrus-Erie walking dragline being used in open pit mining operations in British Guiana. Established community staff mainly North Americans. Salary payable in United States dollars. Give full details, past experience, marital status, salary expectations. Box 3480

OFFICE ASSISTANT

Position available for a young man with two years or more of Engineering training and some field experience with excavating machinery. Duties will include the preparation of written copy for printed instruction books, also correspondence with field personnel. Technical writing experience helpful but not necessary. Position located in middle west. State age, experience and salary expected. Reply to Box 3476 in care of Excavating Engineer.

POSITION WANTED

Position wanted as shovel, dragline, clamshell or pile driver operator. Have operated gas, steam and diesel large and small machines. Prefer steady work. P. O. Box 8, Hurricane, West Virginia. Phone 2224-Hurricane.

of the Department of Commerce. All those honored had served without compensation since the Korean War began. In presenting the certificates, Secretary of Commerce Charles Sawyer stated that "the willingness of you men to come to Washington at personal sacrifice to give your time, talent, and energy to help your country increase its strength is a tribute to the patriotism of American business." Higgins has been an International Harvester sales department executive for many years with experience in the construction machinery industry. In Washington he helped to organize several N.P.A. divisions, including the Construction Machinery Division, which he later was named to direct. The division was responsible for expanding the production of construction machinery for the defense program and also for handling allocations of controlled materials to make the program effective.

R. G. LeTourneau, Inc., Peoria, Ill. announces the appointment of Rocky Mountain Machinery Co. as the distributor to serve contractors in the state of Utah, 3 counties in Wyoming, and 13 counties in Idaho. Located at 1485 S. Second West St. in Salt Lake City, the new distributorship has taken over the J. K. Wheeler Machinery Company's building and operations. The new distributor is manned by men familiar to the construction field. Former J. K. Wheeler secretary-treasurer and service manager, L. W. (Verl) Gurr, is the new company's president. Leland Knudsen is vice president of the new organization. Reg Grane, with twelve years experience in the parts field, is parts manager. The staff is rounded out by Don Miller and Frank Barbes, two experienced service men.

Marion Power Shovel Co., Marion, O., elected three new officers headed by John P. Courtright as president and general manager at the annual meeting. Courtright, with the company since 1927, has been executive vice president and formerly was sales manager. He succeeds Harvey T. Gracely, forced by illness to assume an inactive status except for possible special assignments. J. Malcolm Strelitz, Marion attorney and industrialist, was elected chairman of the board. Other new officers are Adrien F. Busick Jr., vice president in charge of engineering, and Maurice V. Cornell, vice president in charge of sales. David E. Rizor was named assistant to the president in matters pertaining to sales and service. Officers re-elected are Alex Gibson, vice president and treasurer; Merle Virden, secretary and assistant treasurer, Walter C. Kraft, assistant secretary; and Newton B. Schott, assistant secretary. New directors on the 15-man board are Jay H. Maish of Marion; James D. Mooney, New York industrialist; and Martin M. Issler, an investment advisor of New York. The three directors replaced are Gracely, Willis F. Slayton of Quincy, Ill. and T. Howard Green of Flossmoor, Ill. Other directors re-elected were Courtright, Gibson, and Strelitz, all of Marion; Randal Holden, Oscar Lasdon, Joseph Rogers, Arlen Swiger, and Sol M. Zewifach, all of New York; Thomas C. Mullins, Jr. and William E. Mullins, both of Chester, Ill.; W. Stanley Barrett of Providence, R. I.; and Lawrence J. Rubenstein of Roxbury, Mass.

Pioneer Engineering Works, Inc., Minneapolis 13, Minn. and Kensington Steel Co., Chicago, both subsidiaries of Poor & Co., Chicago, announce the opening of an eastern sales office at 94 Clinton Ave., Newark 2, N. J. Personnel operating out of the new office include Roger Lewis, mines and cement plant representative for Pioneer; Fred Dolton, Pioneer sales representative for New England, New York and Pennsylvania; and Wilbur Ellis, eastern representative for Kensington.

St. Paul Hydraulic Hoist, Minneapolis 14, Minn., has appointed George J. Bockmann district manager, southeast district. Bockmann will work with the following St. Paul distributors: Louis Augustus, Inc., Louisville, Ky.; Cole-Kelly Equipment Corp., Richmond and Roanoke, Va.; Interstate Equipment Co., Statesville, N. C.; Kirby and Ross, Inc., Nashville, Tenn.; Rivers Body Factory, Jacksonville, Tampa, Orlando, and Miami, Fla.; Truck Equipment, Inc., Birmingham, Ala.; and Truck Parts Co., Inc., Atlanta, Ga. His territory will also include the states of Maryland, South Carolina, and Mississippi. St. Paul manufactures a line of truck dump bodies, truck body hoists, "Pax-All" refuse loader, Truck Patrol, and the "Frate-Gate" elevating end gate.

Three Answers to Your

DEMOLITION PROBLEMS

There's an I-R PAVING BREAKER

that's right for every job . . .
right in weight
right in power
right in cost

PB-8
82 lb.
Length, 28¾"

This is a real heavy-duty breaker that packs plenty of power for the toughest kind of work—on reinforced concrete or any extra-hard pavement construction. Three interchangeable front heads permit the PB-8 to be quickly converted from a paving breaker to a pile driver or spike driver.

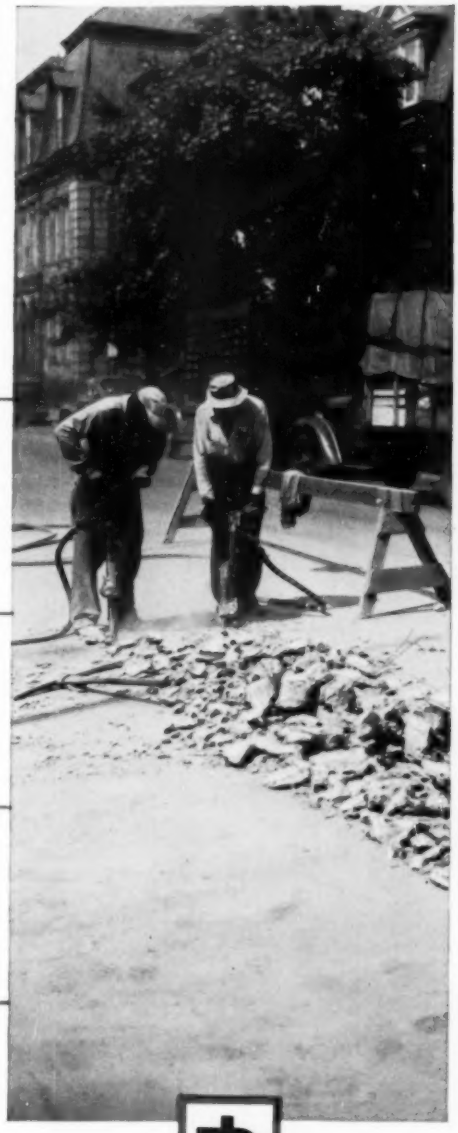
PB-6
58 lb.
Length, 26"

This is also a heavy-duty machine, but its lighter weight speeds up the work and reduces operator fatigue on less strenuous jobs, such as trenching in hard clay or shale, and horizontal demolition work on brick and concrete walls.

L-54
38 lb.
Length, 22½"

Here's a compact, hard-hitting machine with the right combination of weight and power for a wide range of light-duty demolition jobs. It's a big saver of time and effort, especially on scaffolding work where easy handling is so important.

Your nearest Ingersoll-Rand representative will be glad to tell you all about the construction features and cost-saving advantages of these I-R Paving Breakers.



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ROCK DRILLS • COMPRESSORS • AIR TOOLS • CENTRIFUGAL PUMPS • TURBO BLOWERS • CONDENSERS • DIESEL AND GAS ENGINES

This Lippmann GRIZZLY KING Jaw Crusher at Alabama Aggregate Company, Pelham, Alabama, has crushed 1,200,000 tons of tough Blue Ridge rock since it was installed. Discharge opening is 5 inches. The management reports that this tremendous output has been attained without interruptions — that the reversible jaw dies have not been touched, not even reversed.

No other jaw crusher can match GRIZZLY KING'S capacity and performance. Extra-long curved and reversible jaw dies, engineered crushing action with alloy steel frame and jaw add up to the rock-eatingest crusher on the market today. The GRIZZLY KING is the world's highest capacity overhead eccentric jaw crusher and is available in sizes up to 36″ x 48″ opening.

Other Lippmann equipment at Alabama Aggregate includes an apron feeder and discharge belt conveyor with Lippmann Life-Sealed Ball Bearing Idlers. Leading operators the world over choose Lippmann for their crushing, screening and washing plants both stationary and portable. It will pay *you* to do so too. Lippmann Engineering Works, 4611 W. Mitchell St., Milwaukee 14, Wisconsin.

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